

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 z  
Edition : 21.06.91  
Replaces : 24.4.91  
Test oil : ISO-4113

Combination no. : 0 401 876 775

Injection pump  
Pump designation : PE6P110A320LS3835-3  
EP type number : 0 411 816 773  
Governor  
Governor design. : RSV350...1050POA531-  
2  
Governor no. : 0 421 833 343

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 441

1st version kW : 160.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

A01

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 13.50...13.60

Del.quantity cm<sup>3</sup>/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 8.3...8.9

Del.quantity cm<sup>3</sup>/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

1st rack travel in: 12.50  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 64...72  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 8.6

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 8.30...8.90  
Rack travel in mm : 2.00  
Speed rpm : 380...440

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 124.0...128.0  
1000 s: (121.0...131.0)  
Spread cm3 : 6.00  
1000 s: (8.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 1070...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

Observe VDT-I-420/120

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 10,0 a1  
 Edition : 18.02.91  
 Replaces : 25.1.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 035 022  
 Injection pump  
 Pump designation : PES5P120A720/3LS512  
 EP type number : 0 412 025 021  
 Governor  
 Governor design. : RQ325/1000PA813-14  
 Governor no. : 0 421 801 530

## Customer-spec. information

Customer : MAN

Engine : D2865LF02

1st version kW : 199.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.2...4.6

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.90

Speed rpm : 1045...1060  
2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 4.4

#### Testing:

Speed rpm : 100  
Minimum rack travel: 5.90  
Speed rpm : 325  
Rack travel in mm : 4.30...4.50  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.90...11.00  
2nd speed rpm : 750  
Rack travel in m: 11.30...11.50  
3rd speed rpm : 850  
Rack travel in m: 11.10...11.30

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.10...11.20

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.30...8.50  
2nd pressure hPa : 100  
Rack travel in m: 8.70...8.80  
3rd pressure hPa : 350  
Rack travel in m: 10.40...10.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000

Del.quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 207.0...213.0  
1000 s: (204.0...216.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.0...139.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 190.0...210.0  
1000 s: (186.0...214.0)

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.20...4.60  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7043  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 5  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9a42  
 Edition : 28.06.91  
 Replaces : 6.7.90  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 081  
 Injection pump  
 Pump designation : PES6P120A720/3LS470-  
 2  
 EP type number : 0 412 026 050  
 Governor  
 Governor design. : RQ300/1000PA813-16  
 Governor no. : 0 421 801 531

Customer-spec. information  
 Customer : MAN

Engine : D2866LF 04..LH01

1st version kW : 221.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 30...32

A05

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.20  
Speed rpm : 1045...1060  
2nd rack travel in: 4.00  
Speed rpm : 1100...1130  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 4.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.30  
Speed rpm : 300  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 355...395

#### TORQUE CONTROL

Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 750  
Rack travel in m: 10.90...11.10  
3rd speed rpm : 850  
Rack travel in m: 10.50...10.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 10.30...10.40

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.10  
2nd pressure hPa : 85  
Rack travel in m: 9.30...9.40  
3rd pressure hPa : 160  
Rack travel in m: 9.70...10.00

#### START CUT-OUT

Speed 1/min : 190 (210)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000

Del.quantity cm3/ : 191.0...197.0  
1000 s: (188.0...200.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 176.0...182.0  
1000 s: (173.0...185.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 132.0...134.0  
1000 s: (129.0...137.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.70...4.90  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7053

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9a43  
 Edition : 28.06.91  
 Replaces : 14.9.90  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 082  
 Injection pump  
 Pump designation : PES6P120A720/3LS470-2  
 EP type number : 0 412 026 050  
 Governor  
 Governor design. : RQV300...1000PA876-7  
 Governor no. : 0 421 813 867

Customer-spec. information  
 Customer : MAN

Engine : D2866LF 04..LH01

1st version kW : 221.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 30...32

A07

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 4.7...4.9  
 Del.quantity cm3/ : 1.2...1.8  
 100 s: (0.9...2.1)  
 Spread cm3 : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1045  
 travel mm : 9.90...10.10  
 2nd speed rpm : 300  
 travel mm : 1.60...1.80  
 3rd speed rpm : 500  
 travel mm : 3.40...4.00  
 4th speed rpm : 800  
 travel mm : 6.70...7.10  
 5th speed rpm : 1250  
 travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 750

Aneroid pressure h: 1000  
Del.quantity : 185.0...187.0  
1000 : (182.0...190.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 296...304

#### Testing:

1st rack travel in: 9.20  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 256...264

#### Testing:

Speed rpm : 100  
Minimum rack trave: 6.30  
Speed rpm : 300  
Rack travel in mm : 4.70...4.90

#### CONSTANT REGULATION

Speed rpm : 280...390

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 750  
Rack travel in m: 10.20...10.30

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 10.20...10.30

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.10  
2nd pressure hPa : 85  
Rack travel in m: 9.30...9.40  
3rd pressure hPa : 160  
Rack travel in m: 9.70...10.00

A08

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000  
Del.quantity cm3/ : 191.0...197.0  
1000 s: (188.0...200.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 176.0...182.0  
1000 s: (173.0...185.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 132.0...134.0  
1000 s: (129.0...137.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.70...4.90  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7054

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9 g<sup>9</sup>  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 086  
 Injection pump  
 Pump designation : PES6P110A720/3LS477-  
 2  
 EP type number : 0 412 016 071  
 Governor  
 Governor design. : RQ250/1050PA845  
 Governor no. : 0 421 801 604

Customer-spec. information  
 Customer : MAN

Engine : D2866 F/UM

1st version kW : 152.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.90...11.00

Del.quantity cm<sup>3</sup>/ : 10.0...10.3

100 s: (9.7...10.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm<sup>3</sup>/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 100.0...103.0

1000 : (97.5...105.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.90

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.60  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 320...360

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 10.90...11.00  
2nd speed rpm : 1050  
Rack travel in m: 10.80...11.00

#### START CUT-OUT

Speed 1/min : 170 (190)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm3/ : 111.0...115.0  
1000 s: (108.0...118.0)  
Speed rpm : 500  
Del.quantity cm3/ : 91.0...95.0  
1000 s: (88.0...98.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...130.0  
1000 s: (106.0...134.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 15.0...20.0  
1000 s: (12.5...22.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

#### Remarks:

: MAN-NR. 3-7166

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9g10  
 Edition : 02.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 086  
 Injection pump  
 Pump designation : PES6P110A720/3LS477-  
 2  
 EP type number : 0 412 016 071  
 Governor  
 Governor design. : RQ250/1050PA845-2  
 Governor no. : 0 421 801 604

Customer-spec. information  
 Customer : MAN

Engine : D2866 F/UM

1st version kW : 152.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 10.0...10.3

100 s: (9.7...10.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 100.0...103.0

1000 : (97.5...105.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.90

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.60  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 330...370

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 10.90...11.00  
2nd speed rpm : 1050  
Rack travel in m: 10.80...11.00

#### START CUT-OUT

Speed 1/min : 170 (190)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm3/ : 111.0...115.0  
1000 s: (108.0...118.0)  
Speed rpm : 500  
Del.quantity cm3/ : 91.0...95.0  
1000 s: (88.0...98.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...130.0  
1000 s: (106.0...134.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 15.0...20.0  
1000 s: (12.5...22.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

#### Remarks:

: MAN-NR. 3-7166

#### APPLICATION

Omnibus



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9a45  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 036 087  
  
Injection pump  
Pump designation : PES6P120A720/3LS470-  
2  
EP type number : 0 412 026 050  
Governor  
Governor design. : RQ300/1100PA813-6  
Governor no. : 0 421 801 466

Customer-spec. information  
Customer : MAN

Engine : D2866TUH/001

1st version kW : 222.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 19.5...19.7

100 s: (19.2...20.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.2...5.4  
Del.quantity cm3/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 195.0...197.0

1000 : (192.0...200.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.20  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 390...430

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 1050  
Rack travel in m: 11.50...11.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.20...11.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 270  
Rack travel in m: 9.10...9.20  
3rd pressure hPa : 450  
Rack travel in m: 10.10...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 204.0...208.0  
1000 s: (201.0...211.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7167

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,1q28  
 Edition : 21.06.91  
 Replaces : 11.85  
 Test oil : ISO-4113

Combination no. : 0 402 046 266

Injection pump  
 Pump designation : PES6P120A720LS388  
 EP type number : 0 412 026 030  
 Governor  
 Governor design. : RQ250/1050PA658-8  
 Governor no. : 0 421 801 206

Customer spec. information  
 Customer : MAN

Engine : D2566MK279

1st version kw : 206.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...2.0)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 187.0...189.0

1000 : (184.0...192.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.70

Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.4

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.90  
Speed rpm : 250  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 340...380

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 12.00...12.20  
2nd speed rpm : 1050  
Rack travel in m: 10.60...10.80  
3rd speed rpm : 870  
Rack travel in m: 11.60...11.80  
4th speed rpm : 935  
Rack travel in m: 10.90...11.20

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.80...11.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.50...9.70  
2nd pressure hPa : 310  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 440  
Rack travel in m: 11.20...11.60

#### START CUT-OUT

Speed 1/min : 190 (210)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000

Speed rpm : 1050  
Del.quantity cm3/ : 167.0...173.0  
1000 s: (164.0...176.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 178.0...184.0  
1000 s: (175.0...187.0)  
Aneroid pressure h: 310  
Speed rpm : 500  
Del.quantity cm3/ : 139.0...145.0  
1000 s: (136.0...148.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 113.0...115.0  
1000 s: (110.0...118.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.30...6.50  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.0...20.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 2-7238

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 k 1  
Edition : 21.06.91  
Replaces : 1.2.91  
Test oil : ISO-4113

Combination no. : 0 402 046 342

Injection pump  
Pump designation : PES6P120A320RS525-1  
EP type number : 0 412 026 059  
Governor  
Governor design. : RQV275...1100PA984  
Governor no. : 0 421 813 904

Customer-spec. information  
Customer : RVI

Engine : MIDR 06 20 45

1st version kW : 202.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.6...6.0

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 8.40...8.60

2nd speed rpm : 275

travel mm : 0.80...1.20

3rd speed rpm : 500

travel mm : 3.50...4.10

4th speed rpm : 850

travel mm : 5.90...6.30

5th speed rpm : 1450

travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 168.0...170.0  
1000 : (165.0...173.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 298...306

Testing:  
1st rack travel in: 9.70  
Speed rpm : 1180...1190  
2nd rack travel in: 4.00  
Speed rpm : 1260...1290  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 242...250

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 275  
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION  
Speed rpm : 320...440

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.20...9.40  
2nd pressure hPa : 220  
Rack travel in m: 10.10...10.20  
3rd pressure hPa : 195  
Rack travel in m: 9.50...9.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 700

Del.quantity cm3/ : 155.0...161.0  
1000 s: (152.0...164.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 103.0...105.0  
1000 s: (100.0...108.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.70  
Speed rpm : 1180...1190

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...150.0  
1000 s: (120.0...150.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.60...6.00  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (12.0...24.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 7,7 b  
Edition : 05.07.91  
Replaces : 19.3.91  
Test oil : ISO-4113

Combination no. : 0 402 046 343

Injection pump  
Pump designation : PES6P120A72ORS3275  
EP type number : 0 412 026 745  
Governor  
Governor design. : RQV300...1100PA954-1  
K  
Governor no. : 0 421 815 273

Customer spec. information  
Customer : IVECO-FIAT

Engine : 8360.46.016

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.80...12.90

Del.quantity cm<sup>3</sup>/ : 21.8...22.0

100 s: (21.5...22.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.6

Del.quantity cm<sup>3</sup>/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 10.60...10.80

2nd speed rpm : 300

travel mm : 1.00...1.40

3rd speed rpm : 850

travel mm : 6.60...7.00

4th speed rpm : 1350

travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1500

Del.quantity : 218.0...220.0

1000 : (215.0...223.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 11.40  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 65...73

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.90  
Speed rpm : 300  
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION  
Speed rpm : 340...450

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 1100  
Rack travel in m: 12.30...12.50  
3rd speed rpm : 750  
Rack travel in m: 12.30...12.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 900  
Pressure hPa : 1500  
Rack travel mm : 12.80...12.90

Measurement  
Speed 1/min : 900

1st pressure hPa : -  
Rack travel in m: 8.50...8.70  
2nd pressure hPa : 600  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 420  
Rack travel in m: 9.40...9.80

START CUT-OUT

Speed 1/min : 240 (260)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 1100  
Del.quantity cm<sup>3</sup>/ : 203.0...209.0  
1000 s: (200.0...212.0)  
Aneroid pressure h: 1500  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 202.0...208.0  
1000 s: (199.0...211.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 102.0...104.0  
1000 s: (99.0...107.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.40  
Speed rpm : 1140...1150

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...150.0  
1000 s: (116.0...154.0)

## LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.20...4.60  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
1000 s: (17.0...29.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 12,0 f1  
Edition : 21.06.91  
Replaces : 27.2.91  
Test oil : ISO-4113

Combination no. : 0 402 046 758

Injection pump  
Pump designation : PES6P120A320RS3139  
EP type number : 0 412 026 718  
Governor  
Governor design. : RQV275...950PA728-1  
Governor no. : 0 421 813 465

Customer-spec. information  
Customer : RVI

Engine : MIDR 063540

1st version kW : 243.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.20...5.60

Del.quantity cm3/ : 2.2...2.6

100 s: (1.9...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.30...1.70

2nd speed rpm : 450

travel mm : 3.30...3.70

3rd speed rpm : 800

travel mm : 5.60...6.00

4th speed rpm : 950

travel mm : 6.70...6.90

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 197.0...199.0

1000 : (194.0...202.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 59...67

### Testing:

1st rack travel in: 11.50  
Speed rpm : 1020...1030  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 8...16

### Testing:

Speed rpm : 200  
Minimum rack travel: 7.10  
Speed rpm : 275  
Rack travel in mm : 5.30...5.50

## CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude  
Compensator Test

## 1st version

### Setting

Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 12.50...12.60

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.30  
2nd pressure hPa : 520  
Rack travel in m: 11.80...11.90  
3rd pressure hPa : 200  
Rack travel in m: 10.10...10.40

## START CUT-OUT

Speed 1/min : 195 (215)

## FUEL DELIVERY CHARACTERISTICS

## 1st version

Aneroid pressure h: 1000  
Speed rpm : 950  
Del.quantity cm3/ : 198.0...204.0  
1000 s: (195.0...207.0)

Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 115.0...117.0  
1000 s: (112.0...120.0)

## BREAKAWAY

## 1st version

1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1020...1030

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 155.0...185.0  
1000 s: (151.0...189.0)

## LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.20...5.60  
Del.quantity cm3/ : 22.0...26.0  
1000 s: (19.0...29.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 9° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 a18  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 773A  
 Injection pump  
 Pump designation : PES6P110A820LS3131  
 EP type number : 0 412 016 715  
 Governor  
 Governor design. : RQ300/1100PA800  
 Governor no. : 0 421 801 347

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM427H

1st version kW : 177.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 13.9...14.1

100 s: (13.6...14.3)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 12.50...13.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 139.0...141.0

1000 : (136.5...143.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.0

Testing:

1st rack travel in: 10.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 380...420

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 116.0...119.0  
1000 s: (113.0...122.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 a19  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 773B

Injection pump  
Pump designation : PES6P110A820LS3131  
EP type number : 0 412 016 715  
Governor  
Governor design. : RQ300/1100PA800  
Governor no. : 0 421 801 347

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM427H

1st version kW : 177.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
: (4.25...4.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 13.9...14.1

100 s: (13.6...14.3)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 12.50...13.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 139.0...141.0

1000 : (136.5...143.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.0

Testing:

1st rack travel in: 10.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 380...420

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 116.0...119.0  
1000 s: (113.0...122.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ROL 12,2 i1  
Edition : 26.07.91  
Replaces : 9.10.87  
Test oil : ISO-4113

Combination no. : 0 402 046 779

Injection pump  
Pump designation : PES6P120A320RS3170-1  
EP type number : 0 412 026 726  
Governor  
Governor design. : RQ750PA826-1  
Governor no. : 0 421 801 366

Customer-spec. information  
Customer : PERKINS

Engine : EAGLE LE

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00

A27

Firing order : 1- 4- 2- 6- 3- 5

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 212.0...214.0

1000 : (209.0...217.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 26...34

### Testing:

1st rack travel in: 12.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...791

4th rack travel in: 900

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 690 (0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

APPLICATION

Generator



## Note remarks

Combination no. : 0 402 046 804

Engine : OM447h

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Phasing : 0-60-120-180-240-300

Tolerance  $\pm$  ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed          rpm : 1050

Rack travel in mm : 8.80...8.90

Del.quantity cm<sup>3</sup>/ : 10.3...10.5

100 s: (10.0...10.7)

Spread            cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.5

Del.quantity cm3/ : 1.4...2.0  
100 s: (1.1...2.2)

Spread      cm3 : 0.4  
              100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree:  $-1$

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

```
Del.quantity      : 103.0...105.0
```

1000 : (100.5...107.5)

Spread      cm3 : 4.00  
             1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

### Testing:

1st rack travel in: 7.80

Speed rpm : 1095...1110

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.2

#### Testing:

Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 350  
Rack travel in mm : 5.90...6.50  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 8.80...8.90  
2nd speed rpm : 800  
Rack travel in m: 9.30...9.50  
3rd speed rpm : 600  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 94.0...98.0  
1000 s: (91.0...101.0)  
Spread cm3 : 6.00  
1000 s: (9.00)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

## Note remarks

Combination no. : 0 402 046 815

Customer-spec. information  
Customer : IVECO-FIAT

Engine : 8360.46.417

1st version kW : 196.0  
Rated speed : 2200

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

1st speed          rpm : 1100

Rack travel in mm : 12.50...12.60

Del.quantity cm<sup>3</sup>/ : 21.1...21.3

100 s: (20.8,...21.6)

Spread      cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.0...4.4

Del.quantity cm3/ : 2.0...2.6  
100 s: (1.7...2.9)

Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

1st speed rpm : 1160  
travel mm : 10.60...10.80

2nd speed rpm : 300  
travel mm : 1.00...1.40

```
3rd speed      rpm      : 850
  travel mm    : 6.60...7.00
```

```
4th speed      rpm      : 1350
travel mm      : 13.00...14.00
```

## Control-lever position

Degree:  $-1$

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

1st version

Speed rpm : 1100

Aneroid pressure h: 1500

Del.quantity : 211.0...213.0

1000 : (208.0...216.0)

Spread      cm<sup>3</sup> : 5.00  
             1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.60  
Speed      rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed      rpm : 1215...1245  
4th rack travel in: 1400  
Speed      rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: ?

Testing:  
Speed      rpm : 100  
Minimum rack travel: 5.70  
Speed      rpm : 300  
Rack travel in mm : 4.10...4.30  
Rack travel in mm : 2.00  
Speed      rpm : 330...390

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed      rpm : 1100  
Rack travel in m: 12.50...12.60  
2nd speed      rpm : 700  
Rack travel in m: 11.40...11.70  
3rd speed      rpm : 300  
Rack travel in m: 9.00...9.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed      rpm : 1100  
Pressure    hPa : 1500  
Rack travel mm : 13.60...13.70

Measurement  
Speed      1/min : 1100

1st pressure hPa : -  
Rack travel in m: 8.90...9.10  
2nd pressure hPa : 810  
Rack travel in m: 12.40...12.50  
3rd pressure hPa : 430  
Rack travel in m: 10.00...10.30

#### START CUT-OUT

B04

Speed      1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed      rpm : 700  
Del.quantity cm<sup>3</sup>/ : 182.0...188.0  
             1000 s: (179.0...191.0)  
Aneroid pressure h: -  
Speed      rpm : 500  
Del.quantity cm<sup>3</sup>/ : 96.0...98.0  
             1000 s: (93.0...101.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
  
full load rack tr: 11.60  
Speed      rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed      rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
             1000 s: (96.0...124.0)

#### LOW IDLE

Speed      rpm : 300  
Rack travel in mm : 4.00...4.40  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
             1000 s: (17.0...29.0)  
Spread      cm<sup>3</sup> : 8.00  
             1000 s: (12.00)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : UNI 9,5 h  
Edition : 26.07.91  
Replaces : 1.3.91  
Test oil : ISO-4113

Combination no. : 0 402 046 821

Injection pump  
Pump designation : PES6P120A72ORS3273  
EP type number : 0 412 026 746  
Governor  
Governor design. : RQV450...11COPA989  
Governor no. : 0 421 813 918

Customer-spec. information  
Customer : IVECO-UNIC

Engine : 8465.21.004

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 15.5...15.7

100 s: (15.2...16.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 7.90...8.10

2nd speed rpm : 450

travel mm : 0.70...1.10

3rd speed rpm : 650

travel mm : 3.90...4.50

4th speed rpm : 950

travel mm : 6.60...7.00

5th speed rpm : 1500

travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 155.0...157.0

1000 : (152.0...160.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1235...1265  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 400  
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION  
Speed rpm : 450...580

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.90  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...145.0  
1000 s: (121.0...149.0)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 4.80...5.20

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 p  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 824  
Injection pump  
Pump designation : PES6P120A320RS3279  
EP type number : 0 412 026 748  
Governor  
Governor design. : RQ275/1050PA999-1  
Governor no. : 0 421 801 586

Customer-spec. information  
Customer : RVI

Engine : MIHR 062045 A/3

1st version kW : 191.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 13.7...13.9

100 s: (13.4...14.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.4...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 137.0...139.0

1000 : (134.0...142.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20

Speed rpm : 1130...1145

2nd rack travel in: 4.00

Speed rpm : 1215...1245  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 5.6

#### Testing:

Speed rpm : 200  
Minimum rack trave: 6.40  
Speed rpm : 275  
Rack travel in mm : 5.50...5.70

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 700  
Rack travel in m: 0.40...0.50  
2nd speed rpm : 1050  
Rack travel in m: 0.30...0.50

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.50...9.70  
2nd pressure hPa : 240  
Rack travel in m: 10.70...10.80  
3rd pressure hPa : 140  
Rack travel in m: 9.90...10.10

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm3/ : 122.0...128.0  
1000 s: (119.0...131.0)  
Aneroid pressure h: 1  
Speed rpm : 500  
Del.quantity cm3/ : 107.0...109.0  
1000 s: (104.0...112.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1130...1145

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 185.0...205.0  
1000 s: (181.0...209.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.40...5.80  
Del.quantity cm3/ : 16.0...22.0  
1000 s: (13.0...25.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

#### APPLICATION

Omnibus



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 j 2  
Edition : 21.06.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 825  
  
Injection pump  
Pump designation : PES6P110A720LS3282  
EP type number : 0 412 016 736  
Governor  
Governor design. : RQ300/1100PA800-2  
Governor no. : 0 421 801 593

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
: (4.35...4.55)  
Rack travel in mm : 19.00...21.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 j 3  
 Edition : 05.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 826  
 Injection pump  
 Pump designation : PES6P110A720LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA786-2  
 Governor no. : 0 421 801 576

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.50...14.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.0

Testing:

1st rack travel in: 12.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1250  
Speed rpm : 0.00...2.40

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 q  
Edition : 02.08.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 827  
Injection pump  
Pump designation : PES6P120A320RS3284  
EP type number : 0 412 026 749  
Governor  
Governor design. : RQ275/1050PA999-3  
Governor no. : 0 421 801 598

Customer-spec. information  
Customer : RVI

Engine : MIDR/PR 062045

1st version kW : 186.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 9.90...10.00  
Del.quantity cm3/ : 14.3...14.5  
100 s: (14.0...14.8)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 275.0  
Rack travel in mm : 4.3...4.7  
Del.quantity cm3/ : 1.5...2.1  
100 s: (1.2...2.4)  
Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed rpm : 600  
Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 1000  
Del.quantity : 143.0...145.0  
1000 : (140.0...148.0)  
Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Setting point:  
Speed rpm : 600  
Rack travel in mm : 20.0

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1130...1145  
2nd rack travel in: 4.00

Speed rpm : 1195...1225  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 5.4

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.20  
Speed rpm : 275  
Rack travel in mm : 4.40...4.60

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 700  
Rack travel in m: 0.40...0.50  
2nd speed rpm : 1050  
Rack travel in m: 0.30...0.50

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 9.90...10.00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.70...8.90  
2nd pressure hPa : 200  
Rack travel in m: 9.40...9.50  
3rd pressure hPa : 140  
Rack travel in m: 9.00...9.20

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm3/ : 140.0...146.0  
1000 s: (137.0...149.0)

Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 100.0...102.0  
1000 s: (97.0...105.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1130...1145

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 145.0...175.0  
1000 s: (141.0...179.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.30...4.70  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (12.0...24.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 j 4  
 Edition : 02.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 831  
 Injection pump  
 Pump designation : PES6P110A720LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA1015  
 Governor no. : 0 421 801 613

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 13.00...13.10  
 Del.quantity cm3/ : 13.6...13.8  
 100 s: (13.3...14.0)

Spread cm3 : 0.4  
 100 s: (0.8)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.2...7.4  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.4  
 100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 600  
 Rack travel in mm : 13.50...14.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del.quantity : 136.0...138.0  
 1000 : (133.5...140.5)  
 Spread cm3 : 4.00  
 1000 : (8.00)

## RATED SPEED

### 1st version

Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 14.0

Testing:  
 1st rack travel in: 12.00  
 Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1250  
Speed rpm : 0.00...2.40

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 10,1 h  
 Edition : 31.07.91  
 Replaces : 24.8.89  
 Test oil : ISO-4113

Combination no. : 0 402 076 029

Injection pump  
 Pump designation : PES6P110A72ORS337  
 EP type number : 0 412 016 044  
 Governor  
 Governor design. : RSV400...1050PO/416D  
 R  
 Governor no. : 0 421 835 074

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6619 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...43

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85  
 : (2,70...2,90)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10,20

Del. quantity cm<sup>3</sup>/ : 13,5...13,7  
 100 s : (-)

Spread cm<sup>3</sup> : 0,4  
 100 s : (-)

2nd speed rpm : 400  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 2,1...2,7  
 100 s : (-)

Spread cm<sup>3</sup> : 0,4  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 800  
 Del. quantity : 135,0...137,0  
 1000 : (-)

Spread cm<sup>3</sup> : 4,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 9,20  
 Speed rpm : 1095...1105  
 2nd rack travel in: 9,20  
 Speed rpm : 1090...1110

LOW IDLE 1  
 Control lever

position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 400  
Rack travel in mm : 5,90...6,10  
Rack travel in mm : 2,00  
Speed rpm : 520...580

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 10,20  
2nd speed rpm : 630  
Rack travel in m: 10,70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 246,5  
Rack travel mm : 9,85...9,95

#### Measurement

Speed 1/min : 500

1st pressure hPa : 373,2  
Rack travel in m: 10,30...10,50

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 800  
Speed rpm : 630  
Del.quantity cm3/ : 145,0...149,0  
1000 s: (-)  
Spread cm3 : 6,0  
1000 s: (-)  
Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm3/ : 113,6...121,6  
1000 s: (-)  
Spread cm3 : 6,0  
1000 s: (-)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9,20

Speed rpm : 1095...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : <190,0  
1000 s: (-)  
Rack travel in mm : 19,00...21,00

#### HIGH IDLE

#### 1st version

Aneroid pressure h: 800  
Speed rpm : 1150  
Rack travel in mm : 6,20  
Del.quantity cm3/ : 45,0...55,0  
1000 s: (-)  
Spread cm3 : 6,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6,00  
Del.quantity cm3/ : 20,8...26,8  
1000 s: (-)

#### Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 g  
Edition : 18.06.91  
Replaces : 15.11.90  
Test oil : ISO-4113  
  
Combination no. : 0 402 076 733  
  
Injection pump  
Pump designation : PES6P110A720RS3224  
EP type number : 0 412 016 726  
Governor  
Governor design. : RSV475...1050P2A534-  
5  
Governor no. : 0 421 833 313

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6101 AT 001

1st version kW : 170.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X3.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 27...29

Prestroke mm : 3.35...3.45  
: (3.30...3.50)  
Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.20...13.30

Del.quantity cm<sup>3</sup>/ : 15.8...16.0

100 s: (15.6...16.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.6)

2nd speed rpm : 475.0  
Rack travel in mm : 6.9...7.3  
Del.quantity cm<sup>3</sup>/ : 1.7...2.1  
100 s: (1.5...2.4)  
Spread cm<sup>3</sup> : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 600

Del.quantity : 158.0...160.0

1000 : (156.0...162.0)

Spread cm<sup>3</sup> : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control lever

position degrees: 37...45

#### Testing:

1st rack travel in: 12.20  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1145...1155  
3rd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 475  
Rack travel in mm : 4.2

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 475  
Rack travel in mm : 4.60...4.80

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 13.20...13.30  
2nd speed rpm : 600  
Rack travel in m: 13.90...14.10

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 600  
Rack travel mm : 13.90...14.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.60...11.80  
2nd pressure hPa : 300  
Rack travel in m: 13.40...13.50  
3rd pressure hPa : 160  
Rack travel in m: 12.00...12.40

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 600  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 177.0...181.0  
1000 s: (175.0...183.0)  
Aneroid pressure h: -  
Speed rpm : 500

B20

Del.quantity cm<sup>3</sup>/ : 131.0...135.0  
1000 s: (129.0...137.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...145.0  
1000 s: (120.0...150.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 475  
Rack travel in mm : 4.60...4.80

#### Remarks:

: JOHN DEERE # RE39856

Adjust stop lever to 0.5...1.0 mm  
before stop.

Start-of-delivery mark 10.5° cam angle  
after start of delivery cyl. 1

Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 d 5  
 Edition : 05.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 076 734A  
 Injection pump  
 Pump designation : PES6P110A820LS3131-1  
 EP type number : 0 412 016 717  
 Governor  
 Governor design. : RSV350...1100POA487  
 -9  
 Governor no. : 0 421 833 316

Customer spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 C

1st version kW : 165.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 14.1...14.3

100 s: (13.8...14.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Del.quantity : 141.0...143.0

1000 : (138.5...145.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.30  
Speed rpm : 1080...1090  
2nd rack travel in: 4.00  
Speed rpm : 1142...1160  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control Lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.9

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 850  
Rack travel in m: 11.70...11.90  
3rd speed rpm : 700  
Rack travel in m: 12.30...12.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm3/ : 143.0...144.0  
1000 s: (140.0...147.0)  
Spread cm3 : 6.00  
1000 s: (9.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1080...1090

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.80...7.00  
Del.quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 4.50  
1000 s: (7.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PER 16,3 b  
Edition : 26.07.91  
Replaces : 19.3.91  
Test oil : ISO-4113  
  
Combination no. : 0 402 638 803  
  
Injection pump  
Pump designation : PE8P120A12ORS7141  
EP type number : 0 412 628 823  
Governor  
Governor design. : RQ750PA871  
Governor no. : 0 421 801 404

Customer-spec. information  
Customer : PERKINS

Engine : CV8-320 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 6- 5- 4- 8-  
7- 2

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.40...14.50

Del.quantity cm3/ : 33.3...33.5

100 s: (33.0...33.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm3/ : 3.6...4.2

100 s: (3.3...4.5)

Spread cm3 : 0.8

100 s: (1.2)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 333.0...335.0

1000 : (330.0...338.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 77...85

### Testing:

1st rack travel in: 13.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 783...798

4th rack travel in: 900

Speed rpm : 0.00...1.00

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 13.40  
Speed rpm : 750...755

Remarks:

:

APPLICATION

Generator



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PER 16,3 d  
Edition : 26.07.91  
Replaces : 22.3.91  
Test oil : ISO-4113

Combination no. : 0 402 638 805

Injection pump  
Pump designation : PE8P120A120RS7199  
EP type number : 0 412 628 843  
Governor  
Governor design. : RQ750PA871  
Governor no. : 0 421 801 404

Customer-spec. information  
Customer : PERKINS (RR)

Engine : CV8-360 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 6- 5- 4- 8-  
7- 2

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 36.2...36.4

100 s: (35.9...36.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 3.6...4.2

100 s: (3.3...4.5)

Spread cm3 : 0.8

100 s: (1.2)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 362.0...364.0

1000 : (359.0...367.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 87...95

### Testing:

1st rack travel in: 12.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 773...788

4th rack travel in: 900

Speed rpm : 0.00...1.00

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 12.00  
Speed rpm : 750...755

Remarks:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 22,0 c 1  
 Edition : 21.06.91  
 Replaces : 3.6.91  
 Test oil : ISO-4113

Combination no. : 0 402 640 827

Injection pump  
 Pump designation : PE12P120A520LS7826  
 EP type number : 0 412 620 817  
 Governor  
 Governor design. : RGV350...1000PA870  
 -12  
 Governor no. : 0 421 813 933

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 550.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 150...170

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)

Rack travel in mm : 19.00...21.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 180-225-240-285-300-  
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.00...13.10

Del.quantity cm<sup>3</sup>/ : 24.2...24.4  
 100 s: (23.9...24.7)

Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.9  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

## (B) Setting of injection pump with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
 travel mm : 1.30...1.80

2nd speed rpm : 740  
 travel mm : 4.80...5.30

3rd speed rpm : 1058  
 travel mm : 8.30...8.80

4th speed rpm : 1260  
 travel mm : 11.00...12.00

### GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Aneroid pressure h: 1600  
Del.quantity : 242.0...244.0  
1000 : (239.0...247.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 12.00  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 250  
Minimum rack travel: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION  
Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

Measurement  
Speed 1/min : 500

1st pressure hPa : 400  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 700  
Rack travel in m: 11.00...11.20

#### START CUT-OUT

Speed 1/min : 310 (330)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 233.0...238.0  
1000 s: (230.0...241.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 22,0 c 2  
Edition : 21.06.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 640 828

Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0 412 620 817  
Governor  
Governor design. : RQV350...1050PA870  
-13  
Governor no. : 0 421 813 934

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 620.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
(4.35...4.55)  
Rack travel in mm : 19.00...21.00  
Firing order : 12- 1- 5- 9- 8- 3-  
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
180-225-240-285-300-  
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.30...14.40

Del.quantity cm3/ : 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 350.0  
Rack travel in mm : 5.3...5.9  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.30...1.80  
2nd speed rpm : 570  
travel mm : 3.30...3.80  
3rd speed rpm : 900  
travel mm : 5.40...5.90  
4th speed rpm : 1107  
travel mm : 7.80...8.30  
5th speed rpm : 1204  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1175  
Rack travel in mm : 15.20...17.80

# FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050  
Aneroid pressure h: 1800  
Del.quantity : 280.0...282.0  
1000 : (277.0...285.0)  
Spread cm3 : 6.00  
1000 : (10.00)

## RATED SPEED

1st version

Control lever  
position degrees: 114...122

Testing:

1st rack travel in: 13.30  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 59...67

Testing:

Speed rpm : 250  
Minimum rack trave: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

## CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

Measurement

Speed 1/min : 500

1st pressure hPa : 300

Rack travel in m: 9.60...9.70

2nd pressure hPa : 1100

Rack travel in m: 13.80...14.10

## START CUT-OUT

Speed 1/min : 310 (330)

CO2

# FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 750  
Del.quantity cm3/ : 278.0...282.0  
1000 s: (275.0...285.0)  
Spread cm3 : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm3 : 10.00  
1000 s: (15.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30  
Speed rpm : 1090...1100

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 22,0 c 3  
Edition : 21.06.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 640 829

Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0 412 620 817  
Governor  
Governor design. : RGV350...900PA870-14  
Governor no. : 0 421 813 935

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 500.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
(4.35...4.55)  
Rack travel in mm : 19.00...21.00  
Firing order : 12- 1- 5- 9- 8- 3-  
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
180-225-240-285-300-  
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.30...1.80

2nd speed rpm : 655  
travel mm : 4.80...5.30

3rd speed rpm : 960  
travel mm : 8.70...9.20

4th speed rpm : 1120  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1600  
Del.quantity : 236.0...238.0  
1000 : (233.0...241.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 118...126

Testing:  
1st rack travel in: 11.90  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 250  
Minimum rack travel: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION  
Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

Measurement  
Speed 1/min : 500

1st pressure hPa : 400  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 700  
Rack travel in m: 11.00...11.20

#### START CUT-OUT

Speed 1/min : 310 (330)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 228.0...232.0  
1000 s: (225.0...235.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 21,0 b3  
 Edition : 21.06.91  
 Replaces : 27.5.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 640 830  
 Injection pump  
 Pump designation : PE12P120A520LS7824-2  
 EP type number : 0 412 620 816  
 Governor  
 Governor design. : RQV300...1150PA902-4  
 Governor no. : 0 421 813 870

Customer-spec. information  
 Customer : MAN

Engine : D2842LYE

1st version kW : 735.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness : 6.00X1.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
 : (4.45...4.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 180-225-240-285-300-

Phasing : 345  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 30.1...30.3

100 s: (29.8...30.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 500

Rack travel in mm : 9.1...9.3

Del.quantity cm3/ : 14.9...15.1

100 s: (14.6...15.4)

Spread cm3 : 0.8

100 s: (1.2)

3rd speed rpm : 300

Rack travel in mm : 7.20...7.40

Del.quantity cm3/ : 5.2...6.0 \*

100 s: (-)

Spread cm3 : -

100 s: (-)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.60

2nd speed rpm : 450  
 travel mm : 2.90...3.50

3rd speed rpm : 750  
 travel mm : 5.60...6.00

4th speed rpm : 1150  
 travel mm : 9.50...9.70

5th speed rpm : 1400  
 travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1200  
Rack travel in mm : 15.20...17.80

#### FULL LOAD DELIV. AT FULL LOAD STOP

##### 1st version

Speed rpm : 1150  
Aneroid pressure h: 1300  
Del.quantity : 301.0...303.0  
1000 : (298.0...306.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

##### 1st version

Control lever  
position degrees: 118...126

##### Testing:

1st rack travel in: 12.60  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1290...1320  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 79...87

##### Testing:

Speed rpm : 100  
Minimum rack travel: 8.90  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50  
Rack travel in mm : 2.00  
Speed rpm : 470...530

Aneroid/Altitude  
Compensator Test

##### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 1300  
Rack travel mm : 13.60...13.70

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.10...9.30  
2nd pressure hPa : 100  
Rack travel in m: 9.50...9.60  
3rd pressure hPa : 470  
Rack travel in m: 12.40...12.80

#### START CUT-OUT

CO6

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 12.60  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0 \*  
1000 s: (-)

Speed rpm : 100  
Del.quantity cm3/ : - \*\*  
1000 s: (-)  
Rack travel in mm : 17.5...21.0

#### HIGH IDLE

##### 1st version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : <7.00  
Del.quantity cm3/ : - \*\*  
1000 s: (-)

##### 2nd version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : < 7.50  
Del.quantity cm3/ : < 50.0  
1000 s: (-)

##### 3rd version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : 8.40...8.60  
Del.quantity cm3/ : 125.0...200.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Del.quantity cm<sup>3</sup>/ : 52.0...60.0 \*  
1000 s: (-)

Remarks:

: MAN-NR. 2-7153

\* applies to cylinders 4, 5, 6, 8, 10  
and 12

\*\* applies for cylinders 1, 2, 3, 7, 9  
and 11

APPLICATION

Ship

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 21,0 f1  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 640 832  
 Injection pump  
 Pump designation : PE12P120A520LS7824-3  
 EP type number : 0 412 620 829  
 Governor  
 Governor design. : RQV300...1050PA977-1.  
 K  
 Governor no. : 0 421 815 282

Customer spec. information  
 Customer : MAN

Engine : D2842LE

1st version kW : 530.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
 : (4.45...4.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 Phasing : 180-225-240-285-300-  
 345  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 12.10...12.20  
 Del.quantity cm3/ : 24.9...25.1  
 100 s: (24.6...25.4)  
 Spread cm3 : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 4.8...5.2  
 Del.quantity cm3/ : 1.7...2.3  
 100 s: (1.4...2.6)  
 Spread cm3 : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1095  
 travel mm : 10.10...10.30  
 2nd speed rpm : 300  
 travel mm : 1.00...1.20  
 3rd speed rpm : 550  
 travel mm : 3.50...4.10  
 4th speed rpm : 900  
 travel mm : 7.40...7.80  
 5th speed rpm : 1350  
 travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1050  
Aneroid pressure h: 1300  
Del.quantity : 249.0...251.0  
1000 : (246.0...254.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

### RATED SPEED

#### 1st version

Control lever  
position degrees: 295...303

#### Testing:

1st rack travel in: 11.10  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 245...253

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 300  
Rack travel in mm : 4.90...5.10

### CONSTANT REGULATION

Speed rpm : 330...450

### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 700  
Rack travel in m: 11.10...11.30  
3rd speed rpm : 900  
Rack travel in m: 11.50...11.70

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 1050  
Pressure hPa : 1300  
Rack travel mm : 12.10...12.20

### Measurement

Speed 1/min : 1050

1st pressure hPa : -  
Rack travel in m: 8.80...9.00

C09

2nd pressure hPa : 250  
Rack travel in m: 9.20...9.30

### START CUT-OUT

Speed 1/min : 240 (260)

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1300  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 237.0...243.0  
1000 s: (234.0...246.0)  
Aneroid pressure h: 1300  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 222.0...228.0  
1000 s: (219.0...231.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 144.0...146.0  
1000 s: (141.0...149.0)

### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 11.10  
Speed rpm : 1190...1200

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 255.0...275.0  
1000 s: (251.0...279.0)

### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.80...5.20  
Del.quantity cm<sup>3</sup>/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

### Remarks:

: MAN-NR. 3-7149

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 12  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SAC 20,0 a  
Edition : 02.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 640 834  
  
Injection pump  
Pump designation : PE12P130A520RS7226-1  
EP type number : 0 412 630 803  
Governor  
Governor design. : RQV300...930PA1005  
Governor no. : 0 421 813 939

Customer-spec. information  
Customer : SACM

Engine : UD23.V12

1st version kW : 971.0  
Rated speed : 1860

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 5- 10- 3- 7-  
6- 11- 2- 9- 4- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
Phasing : 315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 930

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 37.4...37.7

100 s: (37.0...38.0)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0  
Rack travel in mm : 4.6...5.0  
Del.quantity cm3/ : 3.2...3.8  
100 s: (3.2...3.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 975  
travel mm : 8.40...8.60  
2nd speed rpm : 300  
travel mm : 1.50...1.90  
3rd speed rpm : 600  
travel mm : 4.30...4.70  
4th speed rpm : 1200  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 960  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 930  
Del.quantity : 374.0...377.0  
1000 : (370.5...380.5)

Spread      cm<sup>3</sup> : 6.00  
             1000 : (10.00)

APPLICATION

Navy

RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 10.50  
Speed      rpm : 970...980  
2nd rack travel in: 4.00  
Speed      rpm : 1025...1055  
4th rack travel in: 1150  
Speed      rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 65...73

Testing:  
Speed      rpm : 200  
Minimum rack trave: 6.30  
Speed      rpm : 300  
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION  
Speed      rpm : 300...420

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed    rpm : 930  
Rack travel in m: 10.50...10.60  
2nd speed    rpm : 600  
Rack travel in m: 10.50...10.70

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.50  
Speed      rpm : 970...980

LOW IDLE

Speed      rpm : 300  
Rack travel in mm : 4.60...5.00  
Del.quantity cm<sup>3</sup>/ : 32.0...38.0  
                 1000 s: (32.0...38.0)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 21,9 x 3  
Edition : 28.06.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 640 835  
  
Injection pump  
Pump designation : PE12P120A320LS7807-4  
EP type number : 0 412 620 830  
Governor  
Governor design. : RGV350...900PA870-15  
Governor no. : 0 421 813 944

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 444 A

1st version kW : 375.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 12- 1- 5- 9- 8- 3-  
                  4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
                  180-225-240-285-300-  
                  345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.60...12.70

Del.quantity cm<sup>3</sup>/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 5.2...5.8  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.30...1.80  
2nd speed rpm : 655  
travel mm : 4.80...5.30  
3rd speed rpm : 960  
travel mm : 8.70...9.20  
4th speed rpm : 1120  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1025  
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP



1st version  
Speed rpm : 900  
Aneroid pressure h: 1100  
Del.quantity : 187.0...189.0  
1000 : (184.0...192.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 107...115

Testing:  
1st rack travel in: 11.60  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 250  
Minimum rack trave: 6.80  
Speed rpm : 350  
Rack travel in mm : 5.20...5.80

CONSTANT REGULATION  
Speed rpm : 400...600

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : -  
Rack travel mm : 10.40...10.60

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.80...11.00  
2nd pressure hPa : 400  
Rack travel in m: 11.80...12.00

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 136.0...138.0  
1000 s: (133.0...141.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.60  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 t13  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 838T3  
 Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQ300/1050PA762-4  
 Governor no. : 0 421 801 390

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm<sup>3</sup>/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.80  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.80...15.00  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 550  
Rack travel in m: 12.90...13.10  
3rd pressure hPa : 1050  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : 1150  
Rack travel in m: 14.40...14.70  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1450  
Speed rpm : 1050  
Del.quantity cm3/ : 236.0...239.0  
1000 s: (233.0...242.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1450  
Speed rpm : 800  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 16,0 c1  
Edition : 28.06.91  
Replaces : 31.8.90  
Test oil : ISO-4113

Combination no. : 0 402 646 877

Injection pump  
Pump designation : PE6P130A720RS7122-1  
EP type number : 0 412 636 812  
Governor  
Governor design. : RQV225...930PA922  
Governor no. : 0 421 813 763

Customer-spec. information  
Customer : VOLVO-TRUCK

Engine : TD162 FL,FJ,

1st version kW : 331.0  
Rated speed : 1860

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
: (3.55...3.75)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.50...13.60

Del.quantity cm<sup>3</sup>/ : 30.1...30.4

100 s: (29.7...30.7)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

2nd speed rpm : 250.0  
Rack travel in mm : 4.9...5.1  
Del.quantity cm<sup>3</sup>/ : 2.5...3.0  
100 s: (2.3...3.3)  
Spread cm<sup>3</sup> : 0.5  
100 s: (0.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 1.00...1.40  
2nd speed rpm : 350  
travel mm : 2.10...2.70  
3rd speed rpm : 700  
travel mm : 5.60...6.20  
4th speed rpm : 975  
travel mm : 8.20...8.40  
5th speed rpm : 1090  
travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 7.70...10.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 1200

Del.quantity : 301.0...304.0  
1000 : (297.5...307.5)  
Spread cm3 : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 12.50  
Speed rpm : 970...980  
2nd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 60...68

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 250  
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION  
Speed rpm : 250...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 13.50...13.60

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.50...9.70  
2nd pressure hPa : 85  
Rack travel in m: 9.70...9.80  
3rd pressure hPa : 720  
Rack travel in m: 13.00...13.20

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 181.0...184.0  
1000 s: (177.5...187.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 970...980

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...140.0  
1000 s: (116.0...144.0)  
Rack travel in mm : 9.50...9.70

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.90...5.10  
Del.quantity cm3/ : 25.5...30.5  
1000 s: (23.0...33.0)  
Spread cm3 : 5.00  
1000 s: (8.00)

Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

## Note remarks

Combination no. : 0 402 646 915

Testing:

1st rack travel in: 12.10  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.50...5.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 9.50...9.80

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 r  
Edition : 05.07.91  
Replaces : 3.5.91  
Test oil : ISO-4113

Combination no. : 0 402 646 916

Injection pump  
Pump designation : PE6P120A320LS7836  
EP type number : 0 412 626 840  
Governor  
Governor design. : RQV300...1050PA797  
-17  
Governor no. : 0 421 813 884

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
: (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm<sup>3</sup>/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.4...5.9  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50  
2nd speed rpm : 600  
travel mm : 4.80...5.30  
3rd speed rpm : 820  
travel mm : 5.90...6.40  
4th speed rpm : 1107  
travel mm : 8.30...8.80  
5th speed rpm : 7183  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1125  
Rack travel in mm : 15.20...17.20

FULL LOAD DELIV. AT FULL LOAD STOP



1st version

Speed rpm : 600  
Aneroid pressure h: 800  
Del.quantity : 182.0...184.0  
1000 : (179.0...187.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 118...126

Testing:

1st rack travel in: 12.10  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 80...88

Testing:

Speed rpm : 200  
Minimum rack trave: 7.60  
Speed rpm : 300  
Rack travel in mm : 5.40...5.90

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,1 c  
Edition : 28.06.91  
Replaces : 28.3.91  
Test oil : ISO-4113

Combination no. : 0 402 646 921

Injection pump  
Pump designation : PE6P120A320LS7837  
EP type number : 0 412 626 842  
Governor  
Governor design. : RQ300/1050PA972-3  
Governor no. : 0 421 801 565

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm<sup>3</sup>/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.70  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 12.50...12.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1400  
Rack travel in m: 15.30...15.50  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 1050

Del.quantity cm<sup>3</sup>/ : 235.0...238.0  
1000 s: (232.0...241.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 248.0...252.0  
1000 s: (245.0...255.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.90  
Speed rpm : 1090...1105

Remarks:

:  
\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 r 1  
Edition : 28.06.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 646 939

Injection pump  
Pump designation : PE6P120A320LS7836  
EP type number : 0 412 626 840  
Governor  
Governor design. : RQV300...950PA797-31  
Governor no. : 0 421 813 922

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
: (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 617  
travel mm : 5.00...5.50

3rd speed rpm : 780  
travel mm : 6.10...6.60

4th speed rpm : 1009  
travel mm : 8.30...8.80

5th speed rpm : 1092  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 800  
Del.quantity : 182.0...184.0  
1000 : (179.0...187.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.10  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.30  
Speed rpm : 300  
Rack travel in mm : 5.20...5.80

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : -.00  
2nd speed rpm : 950  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 800  
Rack travel in m: 13.10...13.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.50

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000

Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 203.0...206.0  
1000 s: (200.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 q 1  
 Edition : 26.07.91  
 Replaces : 3.5.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 940  
 Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQ300/950PA971-7  
 Governor no. : 0 421 801 580

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 203.0...206.0  
1000 s: (200.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 10.00...10.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 L2  
Edition : 21.06.91  
Replaces : 27.5.91  
Test oil : ISO-4113

Combination no. : 0 402 646 941

Injection pump  
Pump designation : PE6P120A320RS7218Z  
EP type number : 0 412 626 847  
Governor  
Governor design. : RQ250/1000PA936-1  
Governor no. : 0 421 801 508

Customer-spec. information  
Customer : DAF

Engine : WS 222 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40  
: (5.25...5.45)  
Rack travel in mm : 13.10...14.10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10  
& maximum rack tra: 13.1...14.1  
Difference ° CS : 2.25...3.75

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8



#### Testing:

1st rack travel in: 12.60  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1250  
Speed rpm : 0.00...2.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 250  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 310...350

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 14.60...14.70  
2nd speed rpm : 990  
Rack travel in m: 14.50...14.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 13.60...13.70

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 390  
Rack travel in m: 13.30...13.40  
3rd pressure hPa : 310  
Rack travel in m: 12.70...12.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 161.0...163.0  
1000 s: (158.0...166.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.60  
Speed rpm : 1040...1050

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.90...5.10

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 7,2 a  
Edition : 26.07.91  
Replaces :  
Test oil : ISO-4113  
  
Combination no. : 0 402 646 948  
  
Injection pump  
Pump designation : PE6P120A32ORS7233-1  
EP type number : 0 412 626 849  
Governor  
Governor design. : RQV300...1300PA1003K  
Governor no. : 0 421 815 281

Customer-spec. information  
Customer : PENTA

Engine : TAMD 72 A

1st version kW : 316.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40  
: (3.25...3.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.60...14.70

Del. quantity cm3/ : 27.0...27.2

100 s: (26.7...27.5)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.2

Del. quantity cm3/ : 2.0...2.6

100 s: (1.7...2.7)

Spread cm3 : 0.7

100 s: (1.1)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 2.00...2.40

2nd speed rpm : 550  
travel mm : 4.00...4.60

3rd speed rpm : 1000  
travel mm : 7.00...7.60

4th speed rpm : 1350  
travel mm : 10.10...10.30

5th speed rpm : 1430  
travel mm : 10.90...11.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 1500

Rack travel in mm : 6.00...12.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 2000

Del.quantity : 270.0...272.0  
1000 : (267.0...275.0)  
Spread cm3 : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 13.60  
Speed rpm : 1330...1340  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 71...79

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.00  
Speed rpm : 300  
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION  
Speed rpm : 300...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 14.60...14.70  
2nd speed rpm : 1200  
Rack travel in m: 14.00...14.30  
3rd speed rpm : 1000  
Rack travel in m: 12.50...12.90  
4th speed rpm : 800  
Rack travel in m: 12.10...12.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1300  
Pressure hPa : 2000  
Rack travel mm : 14.60...14.70

Measurement  
Speed 1/min : 1300

1st pressure hPa : -  
Rack travel in m: 7.10...7.40  
2nd pressure hPa : 350

Rack travel in m: 0.20...0.30  
3rd pressure hPa : 1260  
Rack travel in m: 4.50...4.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 2000  
Speed rpm : 800  
Del.quantity cm3/ : 251.0...257.0  
1000 s: (248.0...260.0)  
Spread cm3 : 9.00  
1000 s: (13.0)  
Aneroid pressure h: -  
Speed rpm : 800  
Del.quantity cm3/ : 125.0...127.0  
1000 s: (122.0...130.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.60  
Speed rpm : 1330...1340

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.40...5.60

Remarks:

Start-of-delivery setting with RO80  
diaphragm.

#### APPLICATION

Navy

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 n1  
Edition : 21.06.91  
Replaces : 3.5.91  
Test oil : ISO-4113

Combination no. : 0 402 646 949

Injection pump  
Pump designation : PE6P120A32ORS7230Z  
EP type number : 0 412 626 848  
Governor  
Governor design. : RQV250...1000PA990K  
Governor no. : 0 421 815 274

Customer-spec. information  
Customer : DAF

Engine : WS 295 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.30...1.70

2nd speed rpm : 285

travel mm : 2.10...2.50

3rd speed rpm : 1030

travel mm : 9.60...10.00

4th speed rpm : 1145

travel mm : 11.20...11.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 1500

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 12.70  
Speed rpm : 1030...1040  
2nd rack travel in: 4.00  
Speed rpm : 1135...1165  
4th rack travel in: 1275  
Speed rpm : 0.00...1.40

LOW IDLE 1  
Control lever  
position degrees: 65...73

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.60  
Speed rpm : 250  
Rack travel in mm : 5.10...5.30  
Rack travel in mm : 2.00  
Speed rpm : 320...360

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 500  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 675  
Rack travel in m: 12.60...12.70  
3rd speed rpm : 800  
Rack travel in m: 13.20...13.40  
4th speed rpm : 980  
Rack travel in m: 14.10...14.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 980  
Pressure hPa : 1500  
Rack travel mm : 13.70...13.80

Measurement  
Speed 1/min : 980

1st pressure hPa : -  
Rack travel in m: 8.10...8.30  
2nd pressure hPa : 530  
Rack travel in m: 10.80...10.90  
3rd pressure hPa : 290  
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

D05

Aneroid pressure h: 1500  
Speed rpm : 500  
Del.quantity cm3/ : 263.0...267.0  
1000 s: (260.0...270.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.70  
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.10...5.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 s  
Edition : 21.06.91  
Replaces : 3.5.91  
Test oil : ISO-4113  
  
Combination no. : 0 402 646 950  
  
Injection pump  
Pump designation : PE6P120A320LS7837  
EP type number : 0 412 626 842  
Governor  
Governor design. : RQ300/950PA993-2  
Governor no. : 0 421 801 590

Customer spec. information  
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
(5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600  
Rack travel in mm : 14.70...14.90  
Del.quantity cm3/ : 23.3...23.5  
100 s: (23.0...23.8)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.6...6.2  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.6  
100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed rpm : 600  
Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000  
Del.quantity : 233.0...235.0  
1000 : (230.0...238.0)  
Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Setting point:  
Speed rpm : 600  
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.50  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 950  
Rack travel in m: 15.50...15.70  
3rd speed rpm : 800  
Rack travel in m: 15.60...15.80

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1450  
Rack travel in m: 15.40...15.60  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 950

Del.quantity cm3/ : 251.0...254.0  
1000 s: (248.0...257.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: 1800

Speed rpm : 800

Del.quantity cm3/ : 250.0...254.0  
1000 s: (247.0...257.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 135.0...137.0  
1000 s: (132.0...140.0)

Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.50  
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 q 2  
 Edition : 05.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 952  
 Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQ300/1050PA762-14  
 Governor no. : 0 421 801 606

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness : 8.00X2.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.70...11.90

Del.quantity cm3/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 164.0...166.0

1000 : (161.0...169.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0



Testing:

1st rack travel in: 11.30  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.70...11.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 400  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 900  
Rack travel in m: 11.80...12.00 \*  
4th pressure hPa : -  
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 182.0...185.0  
1000 s: (179.0...188.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

## Note remarks

Combination no. : 0 402 646 953

Customer-spec. information  
Customer : MERCEDES-BENZ

1st version kW : 180.0  
Rated speed : 1900

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.50...5.60
                   : (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order      : 6- 3- 5- 2- 4- 1
```

Phasing : 0-60-120-180-240-300

Tolerance  $\pm$  ° : 0.50 (0.75)

Time to cyl. no. : 6

1st speed      rpm : 600

Rack travel in mm : 11.70...11.90

Del.quantity cm<sup>3</sup>/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm3 : 0.6  
100 s: (1.0)

## Control-lever position

Degree:  $-2$

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## 1st version

Speed rpm : 600

Aneroid pressure h: 700

```
Del.quantity      : 164.0...166.0
1000              : (161.0...169.0)
```

Spread cm3 : 5.00  
1000 : (9.00)

## 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.50  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.70...11.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 400  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 900  
Rack travel in m: 11.80...12.00 \*  
4th pressure hPa : -  
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 187.0...190.0  
1000 s: (184.0...193.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 r 2  
 Edition : 02.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 957  
 Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQV300...1050PA797  
 -32  
 Governor no. : 0 421 813 957

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness : 8.00X2.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.70...11.90

Del.quantity cm3/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

2nd speed rpm : 500

travel mm : 5.90...6.10

3rd speed rpm : 950

4th speed rpm : 1009

5th speed rpm : 1160

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 164.0...166.0  
1000 : (161.0...169.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION  
Speed rpm : 300...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.70...11.90

Measurement  
Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 400  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 900  
Rack travel in m: 11.80...12.00 \*  
4th pressure hPa : -  
Rack travel in m: 10.00...10.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 182.0...185.0  
1000 s: (179.0...188.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.30  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 r 3  
Edition : 02.08.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 646 958

Injection pump  
Pump designation : PE6P120A320LS7836  
EP type number : 0 412 626 840  
Governor  
Governor design. : RQV300...950PA797-33  
Governor no. : 0 421 813 958

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
: (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600  
Rack travel in mm : 11.70...11.90  
Del.quantity cm3/ : 16.4...16.6  
100 s: (16.1...16.9)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.3...5.9  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 2.10...2.30  
travel mm : 5.90...6.10  
travel mm : 6.30...6.50  
travel mm : 6.60...6.80  
5th speed rpm : 1160  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1000  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 700

Del.quantity : 164.0...166.0  
1000 : (161.0...169.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 11.50  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION  
Speed rpm : 300...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.70...11.90

Measurement  
Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 400  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 900  
Rack travel in m: 11.80...12.00 \*  
4th pressure hPa : -  
Rack travel in m: 10.00...10.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 187.0...190.0  
1000 s: (184.0...193.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.50  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 q 4  
Edition : 02.08.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 646 959

Injection pump  
Pump designation : PE6P120A320LS7836  
EP type number : 0 412 626 840  
Governor  
Governor design. : RQ300/1050PA993-6  
Governor no. : 0 421 801 616

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
                  : (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0



Testing:

1st rack travel in: 12.10  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.50...5.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 11.20...11.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

Note remarks

Combination no. : 0 452 646 960

Customer-spec. information  
Customer : MERCEDES-BENZ

1st version kW : 200.0  
Rated speed : 1900

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.50...5.60
                  : (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order      : 6- 3- 5- 2- 4- 1
```

Phasing : 0-60-120-180-240-300

Tolerance  $\pm$  ° : 0.50 (0.75)

Time to cyl. no. : 6

1st speed      rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm<sup>3</sup>/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## Control-lever position

**Degree: -2**

Speed rpm : 600

Rack travel in mm : 19.20...20.80

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:  
1st rack travel in: 12.10  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.20...11.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 203.0...206.0  
1000 s: (200.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a27  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 812  
 Injection pump  
 Pump designation : PE8P120A320LS7801  
 EP type number : 0 412 628 806  
 Governor  
 Governor design. : RQ300/1050PA717  
 Governor no. : 0 421 801 258

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter,  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.7

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 220.0...222.0

1000 : (217.0...225.0)

Spread cm3 : 4.00

1000 : (7.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600  
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300  
Rack travel in mm : 6.4

Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.10...6.70  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90  
2nd speed rpm : 1050  
Rack travel in m: 15.20...15.40  
3rd speed rpm : 850  
Rack travel in m: 15.80...16.10

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : 680  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 310  
Rack travel in m: 12.10...12.30  
2nd pressure hPa : 470  
Rack travel in m: 13.70...13.90  
3rd pressure hPa : 820  
Rack travel in m: 14.90...15.00  
4th pressure hPa : 950  
Rack travel in m: 15.60...15.90  
5th pressure hPa : -  
Rack travel in m: 11.30...11.60

START CUT-OUT

D21

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150  
Speed rpm : 1050  
Del.quantity cm3/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1150  
Speed rpm : 850  
Del.quantity cm3/ : 247.0...251.0  
1000 s: (244.0...254.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a28  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 824  
 Injection pump  
 Pump designation : PE8P120A320LS7801  
 EP type number : 0 412 628 806  
 Governor  
 Governor design. : RQV300...1050PA797  
 Governor no. : 0 421 813 532

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm<sup>3</sup>/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.5

100 s: (0.8)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.40

2nd speed rpm : 600  
 travel mm : 4.90...5.10

3rd speed rpm : 1075  
 travel mm : 7.40...7.60

4th speed rpm : 1100  
 travel mm : 8.00...8.20

5th speed rpm : 1150  
 travel mm : 9.00...9.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1  
Speed rpm : 1125  
Rack travel in mm : 16.50...18.00

#### FULL LOAD DELIV. AT FULL LOAD STOP

##### 1st version

Speed rpm : 600  
Aneroid pressure h: 680  
Del.quantity : 220.0...222.0  
1000 : (217.0...225.0)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.00)

#### RATED SPEED

##### 1st version

Control lever  
position degrees: 117...125

##### Testing:

1st rack travel in: 14.20  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Control lever  
position degrees: 82...90

##### Testing:

Speed rpm : 100  
Minimum rack trave: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.20...6.40

#### CONSTANT REGULATION

Speed rpm : 300...500

#### TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 15.20...15.40  
3rd speed rpm : 850  
Rack travel in m: 15.80...16.10

#### Aneroid/Altitude Compensator Test

##### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 680  
Rack travel mm : 13.10...13.30

#### Measurement

Speed 1/min : 600

D23

1st pressure hPa : 310  
Rack travel in m: 13.10...13.30  
2nd pressure hPa : 470  
Rack travel in m: 13.70...13.90  
3rd pressure hPa : 820  
Rack travel in m: 14.90...15.00  
4th pressure hPa : 1100  
Rack travel in m: 15.90...16.00  
5th pressure hPa : -  
Rack travel in m: 11.40...11.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1150  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1150  
Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 247.0...251.0  
1000 s: (244.0...254.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 14.20  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a29  
Edition : 21.06.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 648 825  
Injection pump  
Pump designation : PE8P120A320LS7801  
EP type number : 0 412 628 806  
Governor  
Governor design. : RQV300...1050PA797-3  
Governor no. : 0 421 813 627

Cust. part no. : T3

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5

100 s: (0.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40

2nd speed rpm : 600  
travel mm : 4.90...5.10

3rd speed rpm : 1075  
travel mm : 7.40...7.60

4th speed rpm : 1100  
travel mm : 8.00...8.20

5th speed rpm : 1150  
travel mm : 9.00...9.20

## GUIDE SLEEVE POSITION

Control-lever position



Degree: -1  
Speed rpm : 1125  
Rack travel in mm : 15.20...17.80

#### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 500  
Aneroid pressure h : 650  
Del.quantity : 201.0...203.0  
1000 : (198.0...206.0)  
Spread cm3 : 4.00  
1000 : (7.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.70  
Speed rpm : 300  
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 1.40  
2nd speed rpm : 1050  
Rack travel in m: 12.70...12.90  
3rd speed rpm : 850  
Rack travel in m: 13.70...14.00  
4th speed rpm : 700  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 14.00...14.20

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.30...13.60  
3rd pressure hPa : 850  
Rack travel in m: 14.10...14.20 \*  
4th pressure hPa : -  
Rack travel in m: 11.40...11.70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1050  
Speed rpm : 1050  
Del.quantity cm3/ : 180.0...183.0  
1000 s: (177.0...186.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1050  
Speed rpm : 700  
Del.quantity cm3/ : 215.0...219.0  
1000 s: (212.0...222.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1050  
Speed rpm : 850  
Del.quantity cm3/ : 206.0...210.0  
1000 s: (203.0...213.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 175.0...190.0  
1000 s: (171.0...194.0)

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a30  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 833  
 Injection pump  
 Pump designation : PE8P120A320LS7801-1  
 EP type number : 0 412 628 818  
 Governor  
 Governor design. : RQV350...1050PA866-3  
 Governor no. : 0 421 813 703

Cust. part no. : T3

Customer spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 18.1...18.3  
 100 s: (17.8...18.6)

Spread cm3 : 0.5  
 100 s: (0.9)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.6...6.0  
 Del.quantity cm3/ : 1.5...2.1  
 100 s: (1.2...2.4)  
 Spread cm3 : 0.6  
 100 s: (1.0)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL  
 1st speed rpm : 300  
 travel mm : 1.20...1.40  
 2nd speed rpm : 600  
 travel mm : 4.90...5.10  
 3rd speed rpm : 1100  
 travel mm : 8.00...8.50  
 4th speed rpm : 1170  
 travel mm : 9.20...9.80

GUIDE SLEEVE POSITION  
 Control-lever position  
 Degree: -1  
 Speed rpm : 1090

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050  
Aneroid pressure h: 1100  
Del.quantity : 181.0...183.0  
1000 : (178.0...186.0)  
Spread cm3 : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 118...126

Testing:

1st rack travel in: 11.80  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever  
position degrees: 67...75

Testing:

Speed rpm : 250  
Minimum rack travel: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 1.60  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 750  
Rack travel in m: 14.40...14.60  
3rd speed rpm : 950  
Rack travel in m: 13.50...13.60  
4th speed rpm : 830  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : -  
Rack travel mm : 11.20...11.50

Measurement

Speed 1/min : 600

1st pressure hPa : 420

Rack travel in m: 11.90...12.10

2nd pressure hPa : 600

Rack travel in m: 13.60...13.80

START CUT-OUT

Speed 1/min : 270 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100  
Speed rpm : 700  
Del.quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 1050  
Del.quantity cm3/ : 152.0...154.0 \*  
1000 s: (149.0...157.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a31  
Edition : 21.06.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 648 841  
Injection pump  
Pump designation : PE8P120A320LS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQ300/1050PA762-5  
Governor no. : 0 421 801 399

Cust. part no. : T3

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 650

Del.quantity : 203.0...205.0

1000 : (200.0...208.0)

Spread cm3 : 4.00

1000 : (7.00)

## RATED SPEED

## 1st version

### Setting point:

Speed rpm : 600  
Rack travel in mm : 20.0

### Testing:

1st rack travel in: 11.70  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.3

### Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.20...6.40  
Rack travel in mm : 2.00  
Speed rpm : 380...420

### TORQUE CONTROL

Dimension a mm : 0.75  
2nd speed rpm : 1050  
Rack travel in m: 12.70...12.90  
3rd speed rpm : 850  
Rack travel in m: 13.70...14.00  
4th speed rpm : 700  
Rack travel in m: 14.40...14.60

### Aneroid/Altitude Compensator Test

### 1st version

#### Setting

Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 14.00...14.20

#### Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.30...13.60  
3rd pressure hPa : 850  
Rack travel in m: 14.10...14.20  
4th pressure hPa : -  
Rack travel in m: 11.40...11.70

### START CUT-OUT

ED2

Speed 1/min : 220 (240)

### FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 1050  
Speed rpm : 1050  
Del.quantity cm3/ : 180.0...183.0  
1000 s: (177.0...186.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1050  
Speed rpm : 700  
Del.quantity cm3/ : 215.0...219.0  
1000 s: (212.0...222.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1050  
Speed rpm : 850  
Del.quantity cm3/ : 206.0...210.0  
1000 s: (203.0...213.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

### BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 11.70  
Speed rpm : 1095...1110

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 175.0...190.0  
1000 s: (171.0...194.0)

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 j 4  
Edition : 21.06.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 648 844  
Injection pump  
Pump designation : PE8P120A320LS7816  
EP type number : 0 412 628 829  
Governor  
Governor design. : RQ300/1050PA717-2  
Governor no. : 0 421 801 439

Cust. part no. : T3

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 234.0...237.0

1000 : (231.0...240.0)

Spread cm3 : 4.00

1000 : (7.00)

## RATED SPEED

## 1st version

### Setting point:

Speed rpm : 600  
Rack travel in mm : 20.0

### Testing:

1st rack travel in: 13.40  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

### Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50  
Rack travel in mm : 2.00  
Speed rpm : 380...420

### TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 14.40...14.60  
3rd speed rpm : 850  
Rack travel in m: 15.00...15.30

### Aneroid/Altitude Compensator Test

### 1st version

#### Setting

Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.60...13.80

#### Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 12.10...12.30  
2nd pressure hPa : 650  
Rack travel in m: 12.80...13.00  
3rd pressure hPa : 1050  
Rack travel in m: 13.70...13.90 \*  
4th pressure hPa : 1350  
Rack travel in m: 14.50...14.70  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

### START CUT-OUT

E04

Speed 1/min : 220 (240)

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1600  
Speed rpm : 1050  
Del.quantity cm3/ : 252.0...256.0  
1000 s: (249.0...259.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1600  
Speed rpm : 850  
Del.quantity cm3/ : 270.0...274.0  
1000 s: (267.0...277.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 13.40  
Speed rpm : 1095...1110

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

\* Increase in control-rod travel with respect to setting at least 0.1 mm



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 j<sup>2</sup>  
 Edition : 28.06.91  
 Replaces : 3.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 844A  
 Injection pump  
 Pump designation : PE8P120A32OLS7816  
 EP type number : 0 412 628 829  
 Governor  
 Governor design. : RQ300/1050PA717-2  
 Governor no. : 0 421 801 439

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600  
 Rack travel in mm : 13.10...13.30  
 Del.quantity cm<sup>3</sup>/ : 22.9...23.2  
 100 s: (22.6...23.5)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.5  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 800  
 Del.quantity : 229.0...232.0  
 1000 : (226.0...235.0)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.00)

## RATED SPEED

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.90  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

#### Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50  
Rack travel in mm : 2.00  
Speed rpm : 380...420

#### TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 13.90...14.60  
3rd speed rpm : 850  
Rack travel in m: 14.50...14.80

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.10...13.30

#### Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 550  
Rack travel in m: 12.40...12.60  
3rd pressure hPa : 950  
Rack travel in m: 13.30...13.50  
4th pressure hPa : 1250  
Rack travel in m: 14.10...14.30  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1600

EO6

Speed rpm : 1050  
Del.quantity cm3/ : 241.0...245.0  
1000 s: (238.0...248.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1600  
Speed rpm : 850  
Del.quantity cm3/ : 254.0...258.0  
1000 s: (251.0...261.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 j 3  
Edition : 05.07.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 648 844A

Injection pump  
Pump designation : PE8P120A320LS7816  
EP type number : 0 412 628 829  
Governor  
Governor design. : RQ300/1050PA717-2  
Governor no. : 0 421 801 439

Cust. part no. : T3

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

E07

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/ : 22.5...22.8

100 s: (22.2...23.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 225.0...228.0

1000 : (222.0...231.0)

Spread cm3 : 4.00

1000 : (7.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.90  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 13.90...14.60  
3rd speed rpm : 850  
Rack travel in m: 14.50...14.80

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.50...11.70  
2nd pressure hPa : 550  
Rack travel in m: 12.40...12.60  
3rd pressure hPa : 950  
Rack travel in m: 13.30...13.50  
4th pressure hPa : 1250  
Rack travel in m: 14.10...14.30  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600  
Speed rpm : 1050  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1600  
Speed rpm : 850  
Del.quantity cm3/ : 261.0...265.0  
1000 s: (258.0...268.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 k 4  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : D 402 648 845  
 Injection pump  
 Pump designation : PE8P120A320LS7816  
 EP type number : 0 412 628 829  
 Governor  
 Governor design. : RQV300...1050PA797-5  
 Governor no. : 0 421 813 702

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600  
 Rack travel in mm : 13.60...13.80  
 Del.quantity cm3/ : 23.4...23.6  
 100 s: (23.1...23.9)  
 Spread cm3 : 0.4  
 100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.5  
 Del.quantity cm3/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm3 : 0.5  
 100 s: (0.8)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.40  
 2nd speed rpm : 800  
 travel mm : 5.80...6.10  
 3rd speed rpm : 1120  
 travel mm : 8.20...8.80  
 4th speed rpm : 1180  
 travel mm : 9.60...10.40

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1100

Rack travel in mm : 15.20...17.80

#### FULL LOAD DELIV. AT FULL LOAD STOP

##### 1st version

Speed rpm : 600  
Aneroid pressure h: 900  
Del.quantity : 234.0...236.0  
1000 : (231.0...239.0)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.00)

#### RATED SPEED

##### 1st version

Control lever  
position degrees: 117...125

##### Testing:

1st rack travel in: 13.40  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 82...90

##### Testing:

Speed rpm : 200  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50

#### CONSTANT REGULATION

Speed rpm : 300...500

#### TORQUE CONTROL

Dimension a mm : 1.30  
2nd speed rpm : 1050  
Rack travel in m: 14.40...14.60  
3rd speed rpm : 800  
Rack travel in m: 14.90...15.10

#### Aneroid/Altitude Compensator Test

##### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.60...13.80

#### Measurement

Speed 1/min : 600

1st pressure hPa : 350

E10

Rack travel in m: 11.10...11.30

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1050

Rack travel in m: 13.70...13.90 \*

4th pressure hPa : 1350

Rack travel in m: 14.50...14.70

5th pressure hPa : -

Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1600

Speed rpm : 1050

Del.quantity cm<sup>3</sup>/ : 252.0...256.0  
1000 s: (249.0...259.0)

Spread cm<sup>3</sup> : 7.00

1000 s: (10.0)

Aneroid pressure h: 1600

Speed rpm : 800

Del.quantity cm<sup>3</sup>/ : 270.0...274.0  
1000 s: (267.0...277.0)

Spread cm<sup>3</sup> : 7.00

1000 s: (10.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 149.0...151.0  
1000 s: (146.0...154.0)

Spread cm<sup>3</sup> : 7.00

1000 s: (10.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000 s: (236.0...264.0)

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 k 2  
 Edition : 05.07.91  
 Replaces : 3.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 845A  
 Injection pump  
 Pump designation : PE8P120A320LS7816  
 EP type number : 0 412 628 829  
 Governor  
 Governor design. : RGV300...1050PA797-5  
 Governor no. : 0 421 813 702

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/ : 22.9...23.2

100 s: (22.6...23.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.5  
 Del.quantity cm3/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm3 : 0.5  
 100 s: (0.8)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.40  
 2nd speed rpm : 800  
 travel mm : 5.80...6.10  
 3rd speed rpm : 1120  
 travel mm : 8.20...8.80  
 4th speed rpm : 1180  
 travel mm : 9.60...10.40

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 800

Del.quantity : 229.0...232.0  
1000 : (226.0...235.0)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50

CONSTANT REGULATION  
Speed rpm : 300...500

TORQUE CONTROL  
Dimension a mm : 1.30  
2nd speed rpm : 1050  
Rack travel in m: 13.90...14.10  
3rd speed rpm : 800  
Rack travel in m: 14.50...14.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.10...13.30

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 550  
Rack travel in m: 12.40...12.60  
3rd pressure hPa : 950  
Rack travel in m: 13.30...13.50  
4th pressure hPa : 1200  
Rack travel in m: 14.10...14.30

5th pressure hPa : -  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 241.0...245.0  
1000 s: (238.0...248.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 254.0...258.0  
1000 s: (251.0...261.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (10.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack travel: 12.90  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks: :



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 k 3  
Edition : 05.07.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 648 845A

Injection pump  
Pump designation : PE8P120A320LS7816  
EP type number : 0 412 628 829  
Governor  
Governor design. : RQV300...1050PA797-5  
Governor no. : 0 421 813 702

Cust. part no. : T3

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

E13

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/ : 22.5...22.8

100 s: (22.2...23.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.5  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.5  
100 s: (0.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 800  
travel mm : 5.80...6.10  
3rd speed rpm : 1120  
travel mm : 8.20...8.80  
4th speed rpm : 1180  
travel mm : 9.60...10.40

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600

Aneroid pressure h: 800  
Del.quantity : 225.0...228.0  
1000 : (222.0...231.0)  
Spread cm3 : 4.00  
1000 : (7.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50

CONSTANT REGULATION  
Speed rpm : 300...500

TORQUE CONTROL  
Dimension a mm : 1.30  
2nd speed rpm : 1050  
Rack travel in m: 13.90...14.10  
3rd speed rpm : 800  
Rack travel in m: 14.50...14.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.10...13.30

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 550  
Rack travel in m: 12.40...12.60  
3rd pressure hPa : 950  
Rack travel in m: 13.30...13.50  
4th pressure hPa : 1200

Rack travel in m: 14.10...14.30  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 1050  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm3/ : 261.0...265.0  
1000 s: (258.0...268.0)  
Spread cm3 : 7.00  
1000 s: (10.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.90  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:  
:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 17,2 e  
Edition : 28.06.91  
Replaces : 8.6.90  
Test oil : ISO-4113

Combination no. : 0 402 648 854

Injection pump  
Pump designation : PE8P130A920/5LS7822  
EP type number : 0 412 638 802  
Governor  
Governor design. : RQV300...950PA905  
Governor no. : 0 421 813 723

Customer-spec. information  
Customer : IVECO-FIAT

Engine : 8280.42.001

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 688 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.10...5.20  
: (5.05...5.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-  
7- 2

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 11.40...11.50

Del.quantity cm<sup>3</sup>/ : 22.8...23.1

100 s: (22.4...23.4)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.5

Del.quantity cm<sup>3</sup>/ : 2.0...2.6

100 s: (1.6...3.0)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 0.60...1.10

2nd speed rpm : 350  
travel mm : 2.10...2.50

3rd speed rpm : 600  
travel mm : 3.80...4.40

4th speed rpm : 950  
travel mm : 7.20...7.40

5th speed rpm : 1200  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 900

Del.quantity : 228.0...231.0

1000 : (224.5...234.5)

Spread cm3 : 8.00  
1000 : (12.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 109...117

Testing:  
1st rack travel in: 10.40  
Speed rpm : 995...1005  
2nd rack travel in: 4.00  
Speed rpm : 1080...1110  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 63...71

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.70  
Speed rpm : 300  
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION  
Speed rpm : 380...480

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 11.40...11.50

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.30...9.60  
2nd pressure hPa : 440  
Rack travel in m: 11.10...11.20  
3rd pressure hPa : 400  
Rack travel in m: 10.40...10.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm3/ : 208.0...215.0  
1000 s: (204.5...218.5)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 168.0...171.0  
1000 s: (164.5...174.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 995...1005

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 210.0...240.0  
1000 s: (206.0...244.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

## Note remarks

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 950  
Del.quantity : 284.0...286.0  
1000 : (281.0...289.0)  
Spread cm3 : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control Lever  
position degrees: 113...121

Testing:

1st rack travel in: 14.40  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever  
position degrees: 61...69

Testing:

Speed rpm : 300  
Minimum rack trave: 5.90  
Speed rpm : 450  
Rack travel in mm : 4.00...4.60

CONSTANT REGULATION

Speed rpm : 450...650

TORQUE CONTROL

Dimension a mm : 0.60  
2nd speed rpm : 1050  
Rack travel in m: 15.40...15.60  
3rd speed rpm : 900  
Rack travel in m: 15.70...15.90  
4th speed rpm : 800  
Rack travel in m: 16.00...16.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 950  
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 11.90...12.10  
2nd pressure hPa : 600

E18

Rack travel in m: 13.80...14.00  
3rd pressure hPa : 1200  
Rack travel in m: 16.60...16.80  
4th pressure hPa : -  
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 370 (390)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600  
Speed rpm : 1050  
Del.quantity cm3/ : 280.0...283.0  
1000 s: (277.0...286.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm3/ : 298.0...302.0  
1000 s: (295.0...305.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 280.0...300.0  
1000 s: (276.0...304.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 o  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 746 908

Injection pump  
Pump designation : PES6P120A320RS7232  
EP type number : 0 412 726 846  
Governor  
Governor design. : RQV275...1000PA1001  
Governor no. : 0 421 813 931

Customer-spec. information  
Customer : RVI

Engine : MIDR 062045 E/3

1st version kW : 249.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75  
                  : (4.60...4.80)  
Rack travel in mm : 18.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.70

Del.quantity cm<sup>3</sup>/ : 26.1...26.3

100 s: (25.8...26.6)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0  
Rack travel in mm : 4.80...5.20  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1070  
travel mm : 8.20...8.40  
2nd speed rpm : 275  
travel mm : 1.10...1.50  
3rd speed rpm : 500  
travel mm : 3.60...4.20  
4th speed rpm : 850  
travel mm : 6.40...6.80  
5th speed rpm : 1400  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1060  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000  
Del.quantity : 261.0...263.0  
1000 : (258.0...266.0)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 298...306

Testing:  
1st rack travel in: 12.60  
Speed rpm : 1065...1075  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 243...251  
Speed rpm : 275  
Rack travel in mm : 4.90...5.00

CONSTANT REGULATION  
Speed rpm : 310...430

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.60...13.70

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.10  
2nd pressure hPa : 560  
Rack travel in m: 12.90...13.00  
3rd pressure hPa : 200  
Rack travel in m: 10.00...10.20

#### START CUT-OUT

Speed 1/min : 225 (245)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 234.0...240.0  
1000 s: (231.0...243.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 113.0...115.0  
1000 s: (110.0...118.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.60  
Speed rpm : 1065...1075

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...160.0  
1000 s: (126.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.80...5.20  
Del.quantity cm<sup>3</sup>/ : 16.0...22.0  
1000 s: (13.0...25.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 12,0 k  
Edition : 28.06.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 746 909  
  
Injection pump  
Pump designation : PES6P120A32ORS7236  
EP type number : 0 412 726 848  
Governor  
Governor design. : RQV275...1000PA1001-  
1  
Governor no. : 0 421 813 936

Customer-spec. information  
Customer : RVI

Engine : MIDR 063540 J/3

1st version kW : 306.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)  
Rack travel in mm : 13.00...14.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 30.3...30.5

100 s: (30.0...30.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.60...5.00

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1070  
travel mm : 8.30...8.50

2nd speed rpm : 275  
travel mm : 1.10...1.50

3rd speed rpm : 500  
travel mm : 3.60...4.20

4th speed rpm : 750  
travel mm : 5.70...6.10

5th speed rpm : 1400  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 303.0...305.0  
1000 : (300.0...308.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 298...306

Testing:  
1st rack travel in: 12.60  
Speed rpm : 1065...1075  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 242...250

Testing:  
Speed rpm : 200  
Minimum rack travel: 5.50  
Speed rpm : 275  
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION  
Speed rpm : 310...430

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.60...13.70

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.00...8.40  
2nd pressure hPa : 680  
Rack travel in m: 12.70...12.80  
3rd pressure hPa : 240  
Rack travel in m: 9.20...9.60

#### START CUT-OUT

Speed 1/min : 225 (245)

#### FUEL DELIVERY CHARACTERISTICS

1st version

E22

Aneroid pressure h: 1000  
Speed rpm : 1000  
Del.quantity cm3/ : 278.0...284.0  
1000 s: (275.0...287.0)  
Speed rpm : 500  
Del.quantity cm3/ : 128.0...138.0  
1000 s: (125.0...141.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 132.0...134.0  
1000 s: (129.0...137.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.60  
Speed rpm : 1065...1075

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.20...4.60  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9 t4  
 Edition : 05.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 910  
 Injection pump  
 Pump designation : PES6P120A720LS7209-1  
 EP type number : 0 412 726 849  
 Governor  
 Governor design. : RQV300...1100PA1006K  
 Governor no. : 0 421 815 283

Customer-spec. information  
 Customer : MAN

Engine : D2866LXE

1st version kW : 324.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90  
 : (4.75...4.95)  
 Rack travel in mm : 12.50...13.50  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60  
 & maximum rack tra: 12.5...13.5  
 Difference ° CS : 1.75...3.25

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 2.0...2.6  
 100 s: (1.7...2.9)

Spread cm3 : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1145  
 travel mm : 9.60...9.80

2nd speed rpm : 300  
 travel mm : 1.40...1.80

3rd speed rpm : 500  
 travel mm : 3.20...3.80

4th speed rpm : 900  
 travel mm : 7.00...7.40

5th speed rpm : 1450  
 travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

#### FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100  
Aneroid pressure h: 1200  
Del.quantity : 252.0...254.0  
1000 : (249.0...257.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version

Control lever  
position degrees: 114...122

Testing:

1st rack travel in: 12.00  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 67...75

Testing:

Speed rpm : 100  
Minimum rack trave: 6.50  
Speed rpm : 300  
Rack travel in mm : 4.90...5.10

#### CONSTANT REGULATION

Speed rpm : 290...420

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 13.00...13.10  
2nd speed rpm : 900  
Rack travel in m: 11.70...11.90  
3rd speed rpm : 700  
Rack travel in m: 11.00...11.20  
4th speed rpm : 500  
Rack travel in m: 11.00...11.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 1100  
Pressure hPa : 1200  
Rack travel mm : 13.00...13.10

#### Measurement

Speed 1/min : 1100

1st pressure hPa : -  
Rack travel in m: 9.00...9.20  
2nd pressure hPa : 100  
Rack travel in m: 9.40...9.50  
3rd pressure hPa : 560  
Rack travel in m: 12.00...12.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 222.0...228.0  
1000 s: (219.0...231.0)  
Aneroid pressure h: 1200  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 218.0...224.0  
1000 s: (215.0...227.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 166.0...168.0  
1000 s: (163.0...171.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 210.0...230.0  
1000 s: (206.0...234.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.80...5.20  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
1000 s: (17.0...29.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7071

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAC 12,0 m  
Edition : 18.06.91  
Replaces : 13.5.91  
Test oil : ISO-4113

Combination no. : 0 402 746 911

Injection pump  
Pump designation : PES6P120A720RS7239  
EP type number : 0 412 726 850  
Governor  
Governor design. : RQV325...900PA944-13.  
K  
Governor no. : 0 421 815 284

Customer-spec. information  
Customer : MACK TRUCKS

Engine : E7-350 ITC

1st version kW : 261.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow  
quantity min. 1/h: 160...170

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35  
: (3.20...3.40)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Phasing :  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900  
Rack travel in mm : 12.80...12.90

Del.quantity cm<sup>3</sup>/ : 23.1...23.3  
100 s: (22.8...23.6)

Spread cm<sup>3</sup> : 0.5  
100 s: (0.9)

2nd speed rpm : 325.0  
Rack travel in mm : 5.0...5.2  
Del.quantity cm<sup>3</sup>/ : 4.6...5.2  
100 s: (4.4...5.4)  
Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
travel mm : 1.20...1.40  
2nd speed rpm : 450  
travel mm : 2.80...3.20  
3rd speed rpm : 650  
travel mm : 5.60...5.80  
4th speed rpm : 900  
travel mm : 8.30...8.50  
5th speed rpm : 1100  
travel mm : 10.30...10.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1200  
Del.quantity : 231.5...233.5  
1000 : (228.5...236.5)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 11.80

Speed rpm : 940...990

2nd rack travel in: 4.00

Speed rpm : 1090...1100

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 275

Minimum rack travel: 6.20

Speed rpm : 325

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 12.80...12.90

2nd speed rpm : 625

Rack travel in m: 12.70...13.00

3rd speed rpm : 550

Rack travel in m: 11.80...12.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 625

Pressure hPa : 1200

Rack travel mm : 12.70...13.00

Measurement

Speed 1/min : 625

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 365

Rack travel in m: 8.90...9.00

3rd pressure hPa : 665

Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 250 (255)

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625

Del.quantity cm3/ : 266.5...272.5

1000 s: (263.5...275.5)

Spread cm3 : 8.00

1000 s: (12.0)

Speed rpm : 875

Del.quantity cm3/ : 199.0...201.0 \*

1000 s: (180.5...207.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm3/ : 147.5...151.5

1000 s: (145.5...153.5)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 940...990

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 210.0...240.0

1000 s: (205.0...245.0)

Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 325

Rack travel in mm : 5.00...5.20

Del.quantity cm3/ : 46.5...52.5

1000 s: (44.5...54.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5203-P8

Bow dimension:

Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

\* This test specification applies only  
to the engine/nozzle-and-holder  
assemblies on an injection-pump test  
bench: setting for test equipment,  
check value for engine equipment.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAC 12,0 ml  
 Edition : 18.06.91  
 Replaces : 13.5.91  
 Test oil : ISO-4113

Combination no. : 0 402 746 912

Injection pump  
 Pump designation : PES6P120A72ORS7239  
 EP type number : 0 412 726 850  
 Governor  
 Governor design. : RQV325...875PA944-14  
 K  
 Governor no. : 0 421 815 285

Customer-spec. information  
 Customer : MACK TRUCKS

Engine : EM7-300 ITC

1st version kW : 224.0  
 Rated speed : 1750

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow  
 quantity min. 1/h: 160...170

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

F01

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 11.00...13.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Phasing :  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 875

---

Rack travel in mm : 11.20...11.30

---

Del. quantity cm<sup>3</sup>/ : 21.6...21.8  
 100 s: (21.3...22.1)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

---

2nd speed rpm : 325.0  
 Rack travel in mm : 4.4...4.6  
 Del. quantity cm<sup>3</sup>/ : 4.6...5.2  
 100 s: (4.4...5.4)

---

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

---

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
 travel mm : 1.70...1.90  
 2nd speed rpm : 450  
 travel mm : 4.20...4.60  
 3rd speed rpm : 650  
 travel mm : 8.00...8.40  
 4th speed rpm : 900  
 travel mm : 10.00...10.20  
 5th speed rpm : 1000  
 travel mm : 10.80...11.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 875  
 Aneroid pressure h: 1200  
 Del. quantity : 216.5...218.5  
 1000 : (213.5...221.5)

---

Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)



## RATED SPEED

1st version  
Control lever  
position degrees: 63...71

Testing:  
1st rack travel in: 10.20  
Speed rpm : 915...965  
2nd rack travel in: 4.00  
Speed rpm : 1015...1025  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17

Testing:  
Speed rpm : 275  
Minimum rack travel: 6.00  
Speed rpm : 325  
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 875  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 510  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 450  
Rack travel in m: 11.80...12.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 510  
Pressure hPa : 1200  
Rack travel mm : 12.90...13.10

Measurement  
Speed 1/min : 510

1st pressure hPa : -  
Rack travel in m: 7.10...7.50  
2nd pressure hPa : 370  
Rack travel in m: 8.70...8.80  
3rd pressure hPa : 730  
Rack travel in m: 11.50...11.90

START CUT-OUT

F02

Speed 1/min : 250 (255)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 510  
Del.quantity cm3/ : 315.5...321.5  
1000 s: (312.5...324.5)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Speed rpm : 875  
Del.quantity cm3/ : 199.0...201.0 \*  
1000 s: (159.5...183.0)  
Aneroid pressure h: -  
Speed rpm : 400  
Del.quantity cm3/ : 160.0...164.0  
1000 s: (158.0...166.0)

## BREAKAWAY.

1st version  
1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 915...965

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 210.0...240.0  
1000 s: (205.0...245.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.40...4.60  
Del.quantity cm3/ : 46.0...52.0  
1000 s: (44.0...54.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : MACK # 313GC5203-P6

Bow dimension:  
Sliding-sleeve position = 37.0 mm  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

\* This test specification applies only  
to the engine/nozzle-and-holder  
assemblies on an injection-pump test  
bench: setting for test equipment,  
check value for engine equipment.

## Note remarks

Combination no. : 0 402 746 913

Engine : OM447 hA

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.20...5.30
                   : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order      : 6- 2- 4- 1- 5- 3
```

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

1st speed      rpm : 600

Rack travel in mm : 12.20...12.40

Del.quantity cm3/ : 16.0...16.2

100 s: (15.7...16.5)

Spread      cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm3 : 0.8  
100 s: (1.2)

## Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 400

Del.quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread      cm<sup>3</sup>    : 5.00  
                 1000    : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.80...6.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 14.00...14.20  
2nd speed rpm : 800  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 400  
Rack travel mm : 12.20...12.40

Measurement

Speed 1/min : 600

1st pressure hPa : 150  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 250  
Rack travel in m: 11.90...12.10  
3rd pressure hPa : 600  
Rack travel in m: 12.40...12.60  
4th pressure hPa : 1100  
Rack travel in m: 13.70...13.90  
5th pressure hPa : -  
Rack travel in m: 11.10...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1100

F05

Del.quantity cm3/ : 210.0...213.0  
1000 s: (207.0...216.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 222.0...226.0  
1000 s: (219.0...229.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 128.0...130.0  
1000 s: (125.0...133.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1145...1160

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 o 1  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 746 915

Injection pump  
Pump designation : PES6P120A320RS7232  
EP type number : 0 412 726 846  
Governor  
Governor design. : RQ275/1050PA999-2  
Governor no. : 0 421 801 594

Customer-spec. information  
Customer : RVI

Engine : MIDR 06-20-45

1st version kW : 249.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75  
: (4.60...4.80)  
Rack travel in mm : 18.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.60...5.00

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 235.0...237.0

1000 : (232.0...240.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10

Speed rpm : 1025...1040

2nd rack travel in: 4.00

Speed rpm : 1235...1265  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 8.3

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.00  
Speed rpm : 275  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 600  
Rack travel in m: 13.50...13.60  
2nd speed rpm : 1050  
Rack travel in m: 13.40...13.60

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.10...13.20

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.60...9.00  
2nd pressure hPa : 560  
Rack travel in m: 12.50...12.60  
3rd pressure hPa : 200  
Rack travel in m: 9.60...10.00

#### START CUT-OUT

Speed 1/min : 225 (245)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm3/ : 207.0...213.0  
1000 s: (204.0...216.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 92.0...94.0  
1000 s: (89.0...97.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1025...1040

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...160.0  
1000 s: (126.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.60...5.00  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (12.0...24.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,8 u 1  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 746 916

Injection pump  
Pump designation : PES6P120A720LS7237  
EP type number : 0 412 726 851  
Governor  
Governor design. : RQ300/1100PA1010  
Governor no. : 0 421 801 596

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM447 hA

1st version kW : 184.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600  
Rack travel in mm : 12.20...12.40  
Del.quantity cm3/ : 16.0...16.2  
100 s: (15.7...16.5)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.8...6.4  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed rpm : 600  
Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 400  
Del.quantity : 160.0...162.0  
1000 : (157.0...165.0)  
Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Setting point:  
Speed rpm : 600  
Rack travel in mm : 20.0

#### Testing:

1st rack travel in: 13.00  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.80...6.40  
Rack travel in mm : 2.00  
Speed rpm : 390...430

#### TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1100  
Rack travel in m: 14.00...14.20

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 400  
Rack travel mm : 12.20...12.40

#### Measurement

Speed 1/min : 600

1st pressure hPa : 150  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 250  
Rack travel in m: 11.90...12.10  
3rd pressure hPa : 600  
Rack travel in m: 12.40...12.60  
4th pressure hPa : 1100  
Rack travel in m: 13.70...13.90  
5th pressure hPa : -  
Rack travel in m: 11.10...11.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1400

F09

Speed rpm : 1100  
Del.quantity cm3/ : 210.0...213.0  
1000 s: (207.0...216.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 222.0...226.0  
1000 s: (219.0...229.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 128.0...130.0  
1000 s: (125.0...133.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks:

:

Note remarks

Combination no. : 0 402 746 917



Testing:

1st rack travel in: 13.60  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.3

Testing:

Speed rpm : 200  
Minimum rack travel: 8.20  
Speed rpm : 300  
Rack travel in mm : 6.00...6.60  
Rack travel in mm : 2.00  
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 14.60...14.80  
2nd speed rpm : 700  
Rack travel in m: 14.80...15.00

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 600  
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 400  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 800  
Rack travel in m: 14.20...14.40  
4th pressure hPa : -  
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

F11

Aneroid pressure h: 1400  
Speed rpm : 1100  
Del.quantity cm3/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 700  
Del.quantity cm3/ : 238.0...242.0  
1000 s: (235.0...245.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 154.0...156.0  
1000 s: (151.0...159.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.60  
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,8 t 2  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 918  
 Injection pump  
 Pump designation : PES6P120A720LS7238  
 EP type number : 0 412 726 852  
 Governor  
 Governor design. : RQ300/1100PA1013  
 Governor no. : 0 421 801 599

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 21.3...21.5  
 100 s: (21.0...21.8)

Spread cm3 : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.2...6.8  
 Del.quantity cm3/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm3 : 0.8  
 100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 600  
 Del.quantity : 213.0...215.0  
 1000 : (210.0...218.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

## RATED SPEED

1st version

Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.60  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 8.40  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 14.60...14.80  
2nd speed rpm : 700  
Rack travel in m: 14.80...15.00

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 600  
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 400  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 800  
Rack travel in m: 14.20...14.40  
4th pressure hPa : 890  
Rack travel in m: 14.50...14.70  
5th pressure hPa : -  
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1100  
Del.quantity cm3/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 700  
Del.quantity cm3/ : 238.0...242.0  
1000 s: (235.0...245.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 148.0...150.0  
1000 s: (145.0...153.0)  
Spread cm3 : -  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.60  
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,8 u 2  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 919  
 Injection pump  
 Pump designation : PES6P120A720LS7237  
 EP type number : 0 412 726 851  
 Governor  
 Governor design. : RQ300/1100PA1013-1  
 Governor no. : 0 421 801 603

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 hA

1st version kW : 184.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm3/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 500

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.30  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.80...6.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : 500  
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 11.60...11.80  
2nd pressure hPa : 600  
Rack travel in m: 12.20...12.40  
3rd pressure hPa : 1100  
Rack travel in m: 12.80...13.00  
4th pressure hPa : -  
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1100  
Del.quantity cm<sup>3</sup>/ : 199.0...201.0  
1000 s: (196.0...203.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 139.0...141.0  
1000 s: (136.0...144.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30  
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,8 t 3  
 Edition : 26.07.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 922  
 Injection pump  
 Pump designation : PES6P120A720LS7238  
 EP type number : 0 412 726 852  
 Governor  
 Governor design. : RQ300/1100PA1008  
 Governor no. : 0 421 801 591

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:  
1st rack travel in: 13.60  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.40  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 600  
Rack travel mm : 14.00...14.20

Measurement  
Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 400  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 800  
Rack travel in m: 14.20...14.40  
4th pressure hPa : 890  
Rack travel in m: 14.50...14.70  
5th pressure hPa : -  
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 1100  
Del.quantity cm3/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 147.0...149.0  
1000 s: (144.0...152.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.60  
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 c 3  
Edition : 27.05.91  
Replaces : 22.3.91  
Test oil : ISO-4113

Combination no. : 0 402 776 806

Injection pump  
Pump designation : PES6P120A720LS7120  
EP type number : 0 412 726 803  
Governor  
Governor design. : RSV350...1050POA529  
-3  
Governor no. : 0 421 833 317

Customer spec. information  
Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 213.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 650

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 41...49



### Testing:

1st rack travel in: 12.30  
Speed rpm : 1080...1085  
2nd rack travel in: 4.00  
Speed rpm : 1160...1173  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80

### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 13.30...13.50  
2nd speed rpm : 950  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 875  
Rack travel in m: 14.20...14.40  
4th speed rpm : 750  
Rack travel in m: 14.70...14.90

### Aneroid/Altitude Compensator Test

### 1st version

#### Setting

Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 14.00...14.20

#### Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 850  
Rack travel in m: 14.30...14.50  
4th pressure hPa : -  
Rack travel in m: 11.30...11.60

### FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 1200  
Speed rpm : 1030

Del.quantity cm<sup>3</sup>/ : 190.0...193.0  
1000 s: (187.0...196.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 214.0...219.0  
1000 s: (211.0...222.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 142.0...144.0  
1000 s: (139.0...147.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

### BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 12.30  
Speed rpm : 1080...1085

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 190.0...210.0  
1000 s: (186.0...214.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 c 5  
Edition : 27.05.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 776 806T3

Injection pump  
Pump designation : PES6P12QA720LS7120  
EP type number : 0 412 726 803  
Governor  
Governor design. : RSV350...1050POA529  
-3  
Governor no. : 0 421 833 317

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 213.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 650

Del.quantity : 202.0...204.0

1000 : (199.0...207.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 41...49

### Testing:

1st rack travel in: 12.30  
Speed rpm : 1080...1085  
2nd rack travel in: 4.00  
Speed rpm : 1160...1173  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

### LOW IDLE 1

Control Lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80

### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 13.30...13.50  
2nd speed rpm : 950  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 875  
Rack travel in m: 14.20...14.40  
4th speed rpm : 750  
Rack travel in m: 14.70...14.90

### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 14.00...14.20

##### Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 850  
Rack travel in m: 14.30...14.50  
4th pressure hPa : -  
Rack travel in m: 11.30...11.60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1200  
Speed rpm : 1030

Del.quantity cm3/ : 194.0...197.0  
1000 s: (191.0...200.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 750  
Del.quantity cm3/ : 219.0...224.0  
1000 s: (216.0...227.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 144.0...146.0  
1000 s: (141.0...149.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 12.30  
Speed rpm : 1080...1085

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 190.0...210.0  
1000 s: (186.0...214.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 a95  
 Edition : 16.01.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 083 449DA  
 Injection pump  
 Pump designation : PES6A100D320/3RS2691  
 EP type number : 9 410 230 025  
 Governor  
 Governor design. : RSV400...1100A2C2209  
 R  
 Governor no. : 9 420 083 201  
 Cust. part no. : 3354634-VERSA030

Customer-spec. information  
 Customer : CUMMINS

Engine : 6 CT 8.3

1st version kw : 160.3  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1250  
 Rack travel in mm : 11.80...11.90  
 Del.quantity cm3/ : 11.5...11.7  
 100 s: (11.3...11.9)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 400.0  
 Rack travel in mm : 5.8...6.0  
 Del.quantity cm3/ : 1.8...2.2  
 100 s: (1.5...2.4)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 2.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1250  
 Del.quantity : 115.0...117.0  
 1000 : (113.0...119.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 90...98

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1330...1360  
4th rack travel in: 1500  
Speed rpm : 0.30...1.70

LOW IDLE 1  
Control lever  
position degrees: 62...70  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.4

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.80...6.30  
Rack travel in mm : 2.00  
Speed rpm : 540...600

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 11.80...11.90  
2nd speed rpm : 500  
Rack travel in m: 11.80...12.00  
5th speed rpm : 400  
Rack travel in m: 12.20...12.70

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...149.0  
1000 s: (132.0...152.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Del.quantity cm3/ : 18.0...22.0  
1000 s: (15.5...24.5)

Spread cm3 : 3.50  
1000 s: (5.50)

#### Remarks:

:  
Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 e  
Edition : 03.06.91  
Replaces : 1.9.88  
Test oil : ISO-4113  
  
Combination no. : 9 400 085 288  
  
Injection pump  
Pump designation : PES6A90D410RS2596-1  
EP type number : 9 400 084 008  
Governor  
Governor design. : RQV300...1300AB1066-3L  
Governor no. : 9 420 080 230

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 127.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 8.6...8.7

100 s: (8.4...8.9)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 8.4...8.6

Del.quantity cm3/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm3 : 0.2

100 s: (0.4)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1375

travel mm : 8.40...8.50

2nd speed rpm : 300

travel mm : 0.90...1.30

3rd speed rpm : 500

travel mm : 2.20...2.60

4th speed rpm : 800

travel mm : 4.30...4.70

5th speed rpm : 1100

travel mm : 6.10...6.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1375

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 86.0...87.0

1000 : (84.0...89.0)

Spread cm<sup>3</sup> : 3.00  
1000 : (5.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 108...116

Testing:  
1st rack travel in: 12.10  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1470...1500  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 60...68

Testing:  
Speed rpm : 100  
Minimum rack travel: 10.00  
Speed rpm : 300  
Rack travel in mm : 8.40...8.60

CONSTANT REGULATION  
Speed rpm : 590...660

TORQUE CONTROL  
Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 13.10...13.20  
2nd speed rpm : 800  
Rack travel in m: 14.10...14.20  
3rd speed rpm : 1000  
Rack travel in m: 13.90...14.10  
4th speed rpm : 1150  
Rack travel in m: 13.30...13.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 14.10...14.20

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.80...12.90  
2nd pressure hPa : 750  
Rack travel in m: 13.90...14.00  
3rd pressure hPa : 650

Rack travel in m: 13.20...13.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 89.0...91.0  
1000 s: (86.5...93.5)  
Aneroid pressure h: 1000  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 90.0...92.0  
1000 s: (87.5...94.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 66.5...68.5  
1000 s: (64.5...70.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 71.0...81.0  
1000 s: (68.0...84.0)  
Rack travel in mm : 14.70...15.70

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 g 2  
Edition : 16.01.91  
Replaces : 24.11.89  
Test oil : ISO-4113

Combination no. : 9 400 085 310

Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018  
Governor  
Governor design. : RQV300...1300AB1066-  
8L  
Governor no. : 9 420 080 279

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 155.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.08)

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 500  
travel mm : 2.30...2.80

3rd speed rpm : 750  
travel mm : 4.10...4.30

4th speed rpm : 1500  
travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED



1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 10.10  
Speed rpm : 1360...1370  
2nd rack travel in: 4.00  
Speed rpm : 1490...1520  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION  
Speed rpm : 420...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.10...11.20

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.70  
2nd pressure hPa : 450  
Rack travel in m: 10.60...10.70  
3rd pressure hPa : 300  
Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 86.0...89.0  
1000 s: (83.5...91.5)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 59.5...61.5  
1000 s: (57.5...63.5)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.10  
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 78.0...90.0  
1000 s: (-)  
Rack travel in mm : 13.60...13.80

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FOR 6,6 k 1  
 Edition : 16.01.91  
 Replaces : 26.3.90  
 Test oil : ISO-4113

Combination no. : 9 400 085 312

Injection pump  
 Pump designation : PES6A95D410RS2742  
 EP type number : 9 400 084 011  
 Governor  
 Governor design. : RQV350...1300AB1220-  
 SL  
 Governor no. : 9 420 080 280

Customer-spec. information  
 Customer : FNH

Engine : 6.6 l

1st version kW : 139.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
 : (3.10...3.30)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.00...3.00

## BASIC SETTING

1st speed rpm : 1300

---

Rack travel in mm : 13.20...13.30

---

Del.quantity cm<sup>3</sup>/ : 10.1...10.3

---

100 s: (9.9...10.6)

---

Spread cm<sup>3</sup> : 0.3

---

100 s: (0.6)

---

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## (B) Setting of injection pump with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
 travel mm : 8.50...8.60

2nd speed rpm : 350  
 travel mm : 1.10...1.80

3rd speed rpm : 500  
 travel mm : 2.70...3.10

4th speed rpm : 700  
 travel mm : 3.50...3.90

5th speed rpm : 1000  
 travel mm : 4.90...5.30

### GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1540

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 900  
Del.quantity : 101.5...103.5  
1000 : (99.0...106.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 111...119

Testing:  
1st rack travel in: 12.20  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1490...1520  
4th rack travel in: 1630  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 65...73

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION  
Speed rpm : 370...440

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 13.20...13.30

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.10...10.40  
2nd pressure hPa : 380  
Rack travel in m: 11.00...11.30  
3rd pressure hPa : 530  
Rack travel in m: 12.80...12.90

#### START CUT-OUT

Speed 1/min : 290 (310)

G01

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 800  
Del.quantity cm3/ : 99.5...103.5  
1000 s: (97.5...105.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 65.5...67.5  
1000 s: (63.0...70.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.20  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 155.0...175.0  
1000 s: (152.0...178.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 g 3  
 Edition : 02.08.91  
 Replaces : 26.3.90  
 Test oil : ISO-4113

Combination no. : 9 400 085 315

Injection pump  
 Pump designation : PES6A95D410RS2772  
 EP type number : 9 400 084 018  
 Governor  
 Governor design. : RQV300...1300AB1066-9L  
 Governor no. : 9 420 080 282

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 125.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

---

Rack travel in mm : 10.40...10.50

---

Del.quantity cm3/ : 8.9...9.1

---

100 s: (8.7...9.3)

---

Spread cm3 : 0.3

---

100 s: (0.6)

---

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 0.80...1.30

2nd speed rpm : 500  
 travel mm : 2.30...2.80

3rd speed rpm : 750  
 travel mm : 4.10...4.30

4th speed rpm : 1500  
 travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1300  
 Aneroid pressure h: 700  
 Del.quantity : 89.0...91.0

---

1000 : (87.0...93.0)

---

Spread cm3 : 3.50

---

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 9.40  
Speed rpm : 1360...1370  
2nd rack travel in: 4.00  
Speed rpm : 1490...1520  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION  
Speed rpm : 420...550

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 800  
Rack travel in m: 10.90...11.00  
4th speed rpm : 1000  
Rack travel in m: 10.60...10.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 10.90...11.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.00...9.30  
2nd pressure hPa : 460  
Rack travel in m: 10.10...10.20  
3rd pressure hPa : 300  
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 86.0...89.0  
1000 s: (83.5...91.5)  
Aneroid pressure h: 700  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 88.0...91.0  
1000 s: (85.5...93.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 50.0...52.0  
1000 s: (48.0...54.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1360...1370

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 78.0...90.0  
1000 s: (-)  
Rack travel in mm : 13.60...13.80

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 g 4  
 Edition : 02.08.91  
 Replaces : 3.7.90  
 Test oil : ISO-4113  
 Combination no. : 9 400 085 317  
 Injection pump  
 Pump designation : PES6A95D410RS2772  
 EP type number : 9 400 084 018  
 Governor  
 Governor design. : RQV300...1300AB1066-6L  
 Governor no. : 9 420 080 265

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 125.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 9.40  
Speed rpm : 1360...1370  
2nd rack travel in: 4.00  
Speed rpm : 1490...1520  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION  
Speed rpm : 420...550

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 800  
Rack travel in m: 10.90...11.00  
4th speed rpm : 1000  
Rack travel in m: 10.60...10.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 10.90...11.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.00...9.30  
2nd pressure hPa : 460  
Rack travel in m: 10.10...10.20  
3rd pressure hPa : 300  
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

G05

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 800  
Del.quantity cm3/ : 86.0...89.0  
1000 s: (83.5...91.5)  
Aneroid pressure h: 700  
Speed rpm : 1000  
Del.quantity cm3/ : 88.0...91.0  
1000 s: (85.5...93.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 50.0...52.0  
1000 s: (48.0...54.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1360...1370

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 78.0...90.0  
1000 s: (-)  
Rack travel in mm : 13.60...13.80

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FOR 6,6 p 1  
Edition : 26.06.91  
Replaces : 9.4.91  
Test oil : ISO-4113  
  
Combination no. : 9 400 085 326  
  
Injection pump  
Pump designation : PES6A95D410RS2802  
EP type number : 9 400 084 025  
Governor  
Governor design. : RQV350...1300AB1220-  
6L  
Governor no. : 9 420 080 308

Customer-spec. information  
Customer : FORD (FNH)

Engine : 6.6 L - TC

1st version kW : 139.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
: (3.10...3.30)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
& maximum rack tra: 21.00  
Difference ° CS : 2.00...3.00

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del. quantity cm<sup>3</sup>/ : 10.1...10.3

100 s: (9.9...10.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0  
Rack travel in mm : 6.0...6.2  
Del. quantity cm<sup>3</sup>/ : 1.5...2.1  
100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
travel mm : 8.50...8.60  
2nd speed rpm : 350  
travel mm : 1.10...1.80  
3rd speed rpm : 500  
travel mm : 2.70...3.10  
4th speed rpm : 700  
travel mm : 3.50...3.90  
5th speed rpm : 1000  
travel mm : 4.90...5.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1540  
Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP



1st version

Speed rpm : 1300  
Aneroid pressure h: 900  
Del.quantity : 101.5...103.5  
1000 : (99.0...106.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 111...119

Testing:

1st rack travel in: 12.20  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1490...1520  
4th rack travel in: 1630  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 65...73

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.00...6.20

#### CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 13.20...13.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.70...11.00  
2nd pressure hPa : 350  
Rack travel in m: 11.20...11.50  
3rd pressure hPa : 500  
Rack travel in m: 12.60...12.70

#### START CUT-OUT

Speed 1/min : 290 (310)

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 800  
Del.quantity cm3/ : 99.5...103.5  
1000 s: (97.5...105.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 71.0...73.0  
1000 s: (68.5...75.5)

#### BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 12.20  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 155.0...175.0  
1000 s: (152.0...178.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,9 e  
 Edition : 2.8.91  
 Replaces : 16.1.91  
 Test oil : ISO-4113  
 Combination no. : 9 400 085 328  
 Injection pump  
 Pump designation : PES4A90D32ORS2798  
 EP type number : 9 400 084 021  
 Governor  
 Governor design. : RS350/1400A2B2255R  
 Governor no. : 9 420 083 247

Customer-spec. information  
 Customer : MWM

Engine : TD 229 EC 4

1st version kW : 90.8  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75  
 : (2.60...2.80)  
 Rack travel in mm : 9.00...12.00

G08

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 12.80...12.90

Del.quantity cm<sup>3</sup>/ : 9.8...9.9

100 s: (9.6...10.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm<sup>3</sup>/ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 800

Del.quantity : 98.5...99.5

1000 : (96.5...101.5)

Spread cm<sup>3</sup> : 3.00

1000 : (5.00)

## RATED SPEED

1st version

Control lever  
position degrees: 62...70

Testing:

1st rack travel in: 11.80  
Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1545...1575  
4th rack travel in: 1700  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever  
position degrees: 15...23  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.0

Testing:

Speed rpm : 250  
Minimum rack travel: 6.40  
Speed rpm : 350  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 3.00  
Speed rpm : 400...460  
Speed rpm : 800  
Maximum rack travel: 2.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 800  
Rack travel in m: 12.80...13.00  
4th speed rpm : 550  
Rack travel in m: 12.80...13.00  
5th speed rpm : 400  
Rack travel in m: 14.80...15.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 800  
Rack travel mm : 12.80...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.80...10.20  
2nd pressure hPa : 180  
Rack travel in m: 10.80...10.90  
3rd pressure hPa : 350  
Rack travel in m: 12.10...12.40

FUEL DELIVERY CHARACTERISTICS

G09

1st version

Aneroid pressure h: 800  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 93.5...96.5  
1000 s: (91.0...99.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 45.5...47.5  
1000 s: (43.5...49.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80  
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.00...21.00

Remarks:

Dimension H = 21.9...22.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 6,5 a  
 Edition : 03.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 085 336  
 Injection pump  
 Pump designation : PES6A95D410RS2812  
 EP type number : 9 400 084 028  
 Governor  
 Governor design. : RQV350...1400AB1261L  
 Governor no. : 9 420 080 307

Customer-spec. information  
 Customer : MWM

Engine : D 610 / X-10

1st version kW : 110.7  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85  
 : (2.70...2.90)  
 Rack travel in mm : 9.00...12.00

G10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 1.50...2.50

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.20...10.30

Del.quantity cm<sup>3</sup>/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100 s: (0.8...1.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.10...7.30

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 550

travel mm : 2.50...3.00

4th speed rpm : 800

travel mm : 3.70...4.20

5th speed rpm : 1500

travel mm : 8.30...8.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1490

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1400  
Del.quantity : 76.5...78.5  
1000 : (74.5...80.5)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 109...117

Testing:  
1st rack travel in: 9.20  
Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1535...1565  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.00  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 700  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 1000  
Rack travel in m: 10.50...10.60  
4th speed rpm : 1300  
Rack travel in m: 10.20...10.30

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 700  
Del.quantity cm3/ : 66.5...69.5  
1000 s: (64.0...72.0)  
Speed rpm : 1000  
Del.quantity cm3/ : 76.5...79.5  
1000 s: (74.0...82.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 145.0...159.0  
1000 s: (142.0...162.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (8.5...15.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 6,5 a 1  
Edition : 03.06.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 400 085 337  
Injection pump  
Pump designation : PES6A95D410RS2812  
EP type number : 9 400 084 028  
Governor  
Governor design. : RQV350...1300AB1260L  
Governor no. : 9 420 080 306

Customer spec. information  
Customer : MM

Engine : TD 610 / X-10

1st version kW : 143.9  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85  
: (2.70...2.90)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
& maximum rack tra: 21.00  
Difference ° CS : 1.50...2.50

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 0.7...1.1

100 s: (0.6...1.3)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.10...7.30

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 550

travel mm : 2.50...3.00

4th speed rpm : 800

travel mm : 3.70...4.20

5th speed rpm : 1500

travel mm : 8.30...8.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1490

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 800  
Del.quantity : 99.0...101.0  
1000 : (97.0...103.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 107...115

Testing:  
1st rack travel in: 11.20  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1495...1525  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 63...71

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION  
Speed rpm : 350...500

TORQUE CONTROL  
Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 800  
Rack travel in m: 12.50...12.60  
3rd speed rpm : 850  
Rack travel in m: 12.50...12.60  
4th speed rpm : 1150  
Rack travel in m: 12.20...12.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 800  
Rack travel mm : 12.50...12.60

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.60...11.80  
2nd pressure hPa : 480  
Rack travel in m: 12.30...12.40  
3rd pressure hPa : 400  
Rack travel in m: 11.90...12.10

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800  
Speed rpm : 800  
Del.quantity cm3/ : 99.5...102.5  
1000 s: (97.0...105.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 80.0...82.0  
1000 s: (78.0...84.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.20  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 145.0...159.0  
1000 s: (142.0...162.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm3/ : 7.5...11.5  
1000 s: (6.0...13.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 k 1  
 Edition : 26.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 085 343  
 Injection pump  
 Pump designation : PES6A95D410RS2795  
 EP type number : 9 400 084 020  
 Governor  
 Governor design. : RQV300...1400AB1065-  
 18L  
 Governor no. : 9 420 080 278

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 100.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm<sup>3</sup>/ : 6.8...7.0

100 s: (6.6...7.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.0

Del.quantity cm<sup>3</sup>/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.3)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.50...8.60

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 500

travel mm : 2.30...2.80

4th speed rpm : 750

travel mm : 4.10...4.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 68.5...70.5

1000 : (66.5...72.5)

Spread cm<sup>3</sup> : 3.50

1000 : (3.50)

## RATED SPEED



1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1460...1470  
2nd rack travel in: 4.00  
Speed rpm : 1545...1575  
4th rack travel in: 1680  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 66...74

Testing:  
Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION  
Speed rpm : 480...630

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 50.0...53.0  
1000 s: (47.5...55.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.90  
Speed rpm : 1460...1470

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 78.0...90.0  
1000 s: (75.0...93.0)  
Rack travel in mm : 14.00...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,8 o 2  
Edition : 03.06.91  
Replaces : 16.1.91  
Test oil : ISO-4113

Combination no. : 9 400 087 318

Injection pump  
Pump designation : PE6P110A720RS371-1  
EP type number : 0 411 816 166  
Governor  
Governor design. : RQ300/1050PA419-1  
Governor no. : 9 420 080 194

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 355-A

1st version kW : 210.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 16.1...16.3

100 s: (15.9...16.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.3

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 161.0...163.0

1000 : (159.0...165.0)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.90

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1270

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.60

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/ : 152.0...156.0  
1000 s: (149.0...159.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...145.0  
1000 s: (116.0...149.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FOR 6,6 n 1  
Edition : 26.06.91  
Replaces : 16.1.91  
Test oil : ISO-4113

Combination no. : 9 400 087 422

Injection pump  
Pump designation : PES6P100A720RS3235  
EP type number : 9 400 087 067  
Governor  
Governor design. : RQV350...1200PA923-5  
K

Governer no. : 9 420 080 277

Customer-spec. information  
Customer : FORD (FNH)

Engine : 6.6 Ltr

1st version kW : 138.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 85...95

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 3.45...3.55  
(3.40...3.60)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 15.80...15.90

Del.quantity cm3/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.5

100 s: (0.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 8.90...9.10

2nd speed rpm : 600

travel mm : 5.40...5.60

3rd speed rpm : 450

travel mm : 3.80...4.00

4th speed rpm : 350

travel mm : 2.20...2.40

5th speed rpm : 275

travel mm : 1.10...1.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 163.5...165.5

1000 : (160.5...168.5)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 14.80  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1530  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 275  
Minimum rack travel: 8.30  
Speed rpm : 350  
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION  
Speed rpm : 390...460

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 15.80...15.90  
2nd speed rpm : 750  
Rack travel in m: 14.00...14.20  
3rd speed rpm : 550  
Rack travel in m: 13.00...13.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1200  
Pressure hPa : 1200  
Rack travel mm : 15.80...15.90

Measurement  
Speed 1/min : 1200

1st pressure hPa : -  
Rack travel in m: 9.70...10.10  
2nd pressure hPa : 360  
Rack travel in m: 11.40...11.50  
3rd pressure hPa : 745  
Rack travel in m: 14.20...14.60

#### START CUT-OUT

Speed 1/min : 290 (310)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 163.5...169.5  
1000 s: (160.5...172.5)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 93.0...97.0  
1000 s: (91.0...99.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.80  
Speed rpm : 1260...1270

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (138.0...182.0)  
Rack travel in mm : 13.10...13.90

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.50...6.70  
Del.quantity cm<sup>3</sup>/ : 14.0...20.0  
1000 s: (12.0...22.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (8.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 i 3  
Edition : 02.08.91  
Replaces : 8.5.91  
Test oil : ISO-4113  
  
Combination no. : 9 400 087 429  
  
Injection pump  
Pump designation : PES6P120A720RS3256-1  
EP type number : 9 400 087 077  
Governor  
Governor design. : RQV300...1300PA963  
Governor no. : 9 420 080 283

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM366 LA

1st version kW : 156.6  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
(4.25...4.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 3.40...3.60  
Del.quantity cm<sup>3</sup>/ : 1.7...2.0  
100 s: (1.4...2.3)  
Spread cm<sup>3</sup> : 0.2  
100 s: (0.3)

2nd speed rpm : 300.0  
Rack travel in mm : 8.6...8.9  
Del.quantity cm<sup>3</sup>/ : 1.0...1.6  
100 s: (0.7...1.9)  
Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.70  
2nd speed rpm : 650  
travel mm : 3.80...4.30  
3rd speed rpm : 1060  
travel mm : 5.60...6.10  
4th speed rpm : 1358  
travel mm : 8.20...8.70  
5th speed rpm : 1461  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1350  
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 11.90  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1420...1450  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.60...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 500  
Rack travel in m: 12.10...12.30  
3rd pressure hPa : 1000  
Rack travel in m: 12.80...13.00

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm3/ : 157.0...159.0  
1000 s: (154.0...162.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 142.0...146.0  
1000 s: (139.0...149.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0  
1000 s: (96.0...124.0)

Remarks:

Start-of-delivery blocking at start of  
delivery of cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 i 4  
Edition : 02.08.91  
Replaces : 8.5.91  
Test oil : ISO-4113

Combination no. : 9 400 087 430

Injection pump  
Pump designation : PES6P120A72ORS3256-1  
EP type number : 9 400 087 077  
Governor  
Governor design. : RQV300...1300PA963-1  
Governor no. : 9 420 080 284

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM366 LA

1st version kW : 171.5  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
: (4.25...4.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 3.40...3.60

Del.quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.70

2nd speed rpm : 650

travel mm : 3.80...4.30

3rd speed rpm : 1060

travel mm : 5.60...6.10

4th speed rpm : 1358

travel mm : 8.20...8.70

5th speed rpm : 1461

travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP



1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1445...1475  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack trave: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.60...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 700  
Rack travel in m: 13.00...13.20  
3rd pressure hPa : 1000  
Rack travel in m: 13.70...13.90

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm3/ : 180.0...182.0  
1000 s: (177.0...185.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 164.0...168.0  
1000 s: (161.0...171.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.90  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0  
1000 s: (96.0...124.0)

Remarks:

:  
Start-of-delivery blocking at start of  
delivery of cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 i 2  
Edition : 02.08.91  
Replaces : 8.5.91  
Test oil : ISO-4113

Combination no. : 9 400 087 431

Injection pump  
Pump designation : PES6P120A720RS3256  
EP type number : 9 400 087 071  
Governor  
Governor design. : RQV300...1300PA963-2  
Governor no. : 9 420 080 285

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM366 LA

1st version kW : 141.7  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
: (4.25...4.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 3.40...3.60

Del. quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.70

2nd speed rpm : 650  
travel mm : 3.80...4.30

3rd speed rpm : 1060  
travel mm : 5.60...6.10

4th speed rpm : 1358  
travel mm : 8.20...8.70

5th speed rpm : 1461  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 10.60  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.60...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 700  
Rack travel in m: 11.80...12.00

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version

G25

Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.0...139.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 114.0...118.0  
1000 s: (111.0...121.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.60  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

Remarks:

Start-of-delivery blocking at start of  
delivery of cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 12,2 h1  
 Edition : 02.08.91  
 Replaces : 24.10.90  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 434  
 Injection pump  
 Pump designation : PE6P120A320RS3178  
 EP type number : 0 411 826 752  
 Governor  
 Governor design. : RQV250...1025PA921-2  
 Governor no. : 0 421 813 785

Customer-spec. information  
 Customer : VOLVO

Engine : TD 122 FS

1st version kW : 287.0  
 Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
 : (3.55...3.75)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 25.3...25.5

100 s: (25.0...25.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del.quantity cm3/ : 1.7...2.2  
 100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.10...1.30

2nd speed rpm : 500  
 travel mm : 4.10...4.90

3rd speed rpm : 700  
 travel mm : 6.30...6.70

4th speed rpm : 900  
 travel mm : 6.30...6.70

5th speed rpm : 1025  
 travel mm : 7.30...7.80

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 253.0...255.0  
1000 : (250.0...258.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 116...124

Testing:  
1st rack travel in: 13.00  
Speed rpm : 1055...1065  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 59...67

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 250  
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION  
Speed rpm : 250...400

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 14.00...14.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 90  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 760  
Rack travel in m: 13.50...13.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 163.0...165.0  
1000 s: (160.0...168.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1055...1065

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 270.0...310.0  
1000 s: (266.0...314.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.80...5.10  
Del.quantity cm3/ : 17.5...22.5  
1000 s: (15.0...25.0)  
Spread cm3 : 5.00  
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

Start-of-delivery setting with ROBO  
diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 10,0q15  
 Edition : 02.08.91  
 Replaces : 24.10.90  
 Test oil : ISO-4113

Combination no. : 9 400 087 437

Injection pump  
 Pump designation : PE6P110A320RS3108Y  
 EP type number : 0 411 816 729  
 Governor  
 Governor design. : RQV250...1100PA589-3  
 Governor no. : 9 420 080 288

Customer-spec. information  
 Customer : VOLVO

Engine : THD 100 EC

1st version kW : 180.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

---

Rack travel in mm : 11.10...11.20

---

Del.quantity cm3/ : 13.8...14.0

---

100 s: (13.5...14.3)

---

Spread cm3 : 0.4

---

100 s: (0.7)

---

2nd speed rpm : 250.0  
 Rack travel in mm : 5.2...5.4  
 Del.quantity cm3/ : 3.0...3.4  
 100 s: (2.7...3.6)  
 Spread cm3 : 0.3  
 100 s: (0.6)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.10...1.30  
 2nd speed rpm : 500  
 travel mm : 4.10...4.90  
 3rd speed rpm : 700  
 travel mm : 6.30...6.70  
 4th speed rpm : 950  
 travel mm : 6.30...6.70  
 5th speed rpm : 1100  
 travel mm : 7.00...7.50

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1175  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Aneroid pressure h: 900  
 Del.quantity : 138.0...140.0  
 1000 : (135.0...143.0)

Spread cm3 : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 61...69

#### Testing:

1st rack travel in: 10.10  
Speed rpm : 1160...1170  
2nd rack travel in: 4.00  
Speed rpm : 1225...1255  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 8...16

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 250  
Rack travel in mm : 5.20...5.40

#### CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 11.10...11.20

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.60...9.80  
2nd pressure hPa : 275  
Rack travel in m: 9.90...10.00  
3rd pressure hPa : 400  
Rack travel in m: 10.70...10.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 105.5...108.5  
1000 s: (103.0...111.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1160...1170

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 30.0...34.0  
1000 s: (27.5...36.5)  
Spread cm3 : 3.00  
1000 s: (6.00)

#### Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 i 5  
 Edition : 02.08.91  
 Replaces : 8.5.91  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 450  
 Injection pump  
 Pump designation : PES6P120A720RS3256  
 EP type number : 9 400 087 071  
 Governor  
 Governor design. : RQV300...1300PA978  
 Governor no. : 9 420 080 296

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM366 LA

1st version kW : 126.8  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 3.40...3.60

Del.quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.70

2nd speed rpm : 650

travel mm : 3.80...4.30

3rd speed rpm : 1060

travel mm : 5.60...6.10

4th speed rpm : 1358

travel mm : 8.20...8.70

5th speed rpm : 1461

travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP



1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.40...10.60

Measurement  
Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 10.90...11.10  
2nd pressure hPa : 700  
Rack travel in m: 11.60...11.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version

H03

Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 61.0...63.0  
1000 s: (58.0...66.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

Remarks:

:

Start-of-delivery blocking at start of  
delivery of cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FOR 7,8 p  
Edition : 26.06.91  
Replaces : 16.1.91  
Test oil : ISO-4113  
  
Combination no. : 9 400 087 451  
  
Injection pump  
Pump designation : PES6P110A720RS3272  
EP type number : 9 400 087 076  
Governor  
Governor design. : RQV350...1200PA863-1  
Governor no. : 9 420 080 300

Customer-spec. information  
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 206.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75  
: (4.60...4.80)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.60

Del.quantity cm<sup>3</sup>/ : 17.4...17.6

100 s: (17.2...17.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.1...6.3

Del.quantity cm<sup>3</sup>/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1360

travel mm : 8.40...8.50

2nd speed rpm : 1000

travel mm : 5.50...5.90

3rd speed rpm : 800

travel mm : 4.40...4.80

4th speed rpm : 500

travel mm : 2.60...3.00

5th speed rpm : 300

travel mm : 0.90...1.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1505

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 174.5...176.5  
1000 : (172.5...178.5)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 96...104

Testing:  
1st rack travel in: 12.50  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1370...1400  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 65...73

Testing:  
Speed rpm : 100  
Minimum rack trave: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION  
Speed rpm : 390...460

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 13.50...13.60  
2nd speed rpm : 800  
Rack travel in m: 14.00...14.10  
3rd speed rpm : 850  
Rack travel in m: 13.90...14.10  
4th speed rpm : 1030  
Rack travel in m: 13.50...13.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 14.00...14.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.00...11.20  
2nd pressure hPa : 860

H05

Rack travel in m: 13.50...13.60  
3rd pressure hPa : 540  
Rack travel in m: 11.80...12.20

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 160.0...164.0  
1000 s: (158.0...166.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 92.0...94.0  
1000 s: (89.5...96.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.50  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (135.0...165.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.10...6.30  
Del.quantity cm3/ : 14.0...18.0  
1000 s: (11.5...20.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FOR 7,8 q  
 Edition : 02.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 455  
 Injection pump  
 Pump designation : PES6P110A720RS3285  
 EP type number : 9 400 087 078  
 Governor  
 Governor design. : RQV350...1200PA863  
 -11  
 Governor no. : 9 420 080 310

Customer-spec. information  
 Customer : FORD ( FNH )

Engine : 7.8 L TC

1st version kW : 179.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 2 417 413 057

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 017

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

H06

Prestroke mm : 4.25...4.35  
 : (4.20...4.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 14.9...15.1

100 s: (14.7...15.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0  
 Rack travel in mm : 8.0...8.2  
 Del.quantity cm3/ : 2.4...2.8  
 100 s: (2.1...3.0)  
 Spread cm3 : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1360  
 travel mm : 8.40...8.50  
 2nd speed rpm : 1000  
 travel mm : 5.50...5.90  
 3rd speed rpm : 800  
 travel mm : 4.40...4.80  
 4th speed rpm : 500  
 travel mm : 2.60...3.00  
 5th speed rpm : 300  
 travel mm : 0.90...1.30

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1440  
 Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200

Aneroid pressure h: 700  
Del.quantity : 149.5...151.5  
1000 : (147.5...153.5)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 44...52

Testing:  
1st rack travel in: 13.50  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1520  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 13...21

Testing:  
Speed rpm : 100  
Minimum rack trave: 12.00  
Speed rpm : 350  
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION  
Speed rpm : 390...460

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 14.50...14.60  
2nd speed rpm : 750  
Rack travel in m: 15.00...15.10  
3rd speed rpm : 910  
Rack travel in m: 14.90...15.10  
4th speed rpm : 1040  
Rack travel in m: 14.50...14.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 15.00...15.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.00...12.20

H07

2nd pressure hPa : 430  
Rack travel in m: 13.30...13.40  
3rd pressure hPa : 532  
Rack travel in m: 14.30...14.50

#### START CUT-OUT

Speed 1/min : 290 (310)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 850  
Del.quantity cm3/ : 134.5...138.5  
1000 s: (132.5...140.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 72.0...74.0  
1000 s: (70.0...76.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.50  
Speed rpm : 1260...1270

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 8.00...8.20  
Del.quantity cm3/ : 24.0...28.0  
1000 s: (21.5...30.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 a62  
Edition : 03.06.91  
Replaces : 13.5.91  
Test oil : ISO-4113

Combination no. : 9 400 230 111

Injection pump  
Pump designation : PES6A100D320/3RS2691  
-4

EP type number : 9 410 230 030  
Governor  
Governor design. : RSV450...1100AOC2190  
-40R  
Governor no. : 0 420 233 246

Customer-spec. information  
Customer : C.D.C.

Engine : 6 CT 830

1st version kW : 134.2  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

H08

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Phasing :  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0  
Rack travel in mm : 5.7...5.9  
Del.quantity cm3/ : 1.6...2.0  
100 s: (1.4...2.2)  
Spread cm3 : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del.quantity : 103.5...105.5  
1000 : (101.5...107.5)  
Spread cm3 : 4.00  
1000 : (6.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 49...57

#### Testing:

1st rack travel in: 10.20  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1210...1240  
3rd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 31...39  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 450  
Rack travel in mm : 5.70...5.90

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 750  
Rack travel in m: 12.00...12.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 111.5...115.5  
1000 s: (109.5...117.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 138.0...158.0  
1000 s: (133.0...163.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 450  
Rack travel in mm : 5.70...5.90

Del.quantity cm<sup>3</sup>/ : 16.5...20.5  
1000 s: (14.5...22.5)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### Remarks:

:  
Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 15,8 c2  
 Edition : 23.08.91  
 Replaces : 21.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 188  
 Injection pump  
 Pump designation : PE10A95D610/4LS2452  
 EP type number : 0 410 699 998  
 Governor  
 Governor design. : RQV30C...1150AB988DL  
 Governor no. : 0 420 214 229

Customer-spec. information  
 Customer : KHD

Engine : F10L413F

1st version kW : 216.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

H10

Firing order : 1-10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 9.1...9.2

100 s: (8.9...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.0...7.2  
 Del.quantity cm3/ : 1.7...2.3  
 100 s: (1.4...2.5)  
 Spread cm3 : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 325  
 travel mm : 1.50...2.00  
 3rd speed rpm : 760  
 travel mm : 4.80...5.30  
 4th speed rpm : 1200  
 travel mm : 8.60...9.10  
 5th speed rpm : 1420  
 travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1150  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del.quantity : 91.5...92.5  
 1000 : (89.5...94.5)



Spread cm<sup>3</sup> : 3.00  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 9.00  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

CONSTANT REGULATION  
Speed rpm : 320...390

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 975  
Rack travel in m: 10.20...10.40  
3rd speed rpm : 700  
Rack travel in m: 10.50...10.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 90.0...93.0  
1000 s: (87.5...95.5)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

H11

1st version  
1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.00...7.20  
Del.quantity cm<sup>3</sup>/ : 17.0...23.0  
1000 s: (14.5...25.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 k 4  
 Edition : 23.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 177W  
 Injection pump  
 Pump designation : PE6A85D32ORS2546  
 EP type number : 0 410 686 943  
 Governor  
 Governor design. : RSV250...1300A1C2200  
 R  
 Governor no. : 0 420 233 201

Customer-spec. information  
 Customer : DAF

Engine : DF615

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
 : (2.10...2.30)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 4.9...5.0

100 s: (4.7...5.2)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.3...8.5

Del.quantity cm3/ : 1.4...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Del.quantity : 49.0...50.0

1000 : (47.0...52.0)

Spread cm3 : 3.00

1000 : (4.50)

## RATED SPEED

### 1st version

Control lever

position degrees: 103...111

Testing:

1st rack travel in: 8.50  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
3rd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1340  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 7.9  
Speed rpm : 250  
Rack travel in mm : 8.30...8.50  
Rack travel in mm : 2.00  
Speed rpm : 595...655

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 400  
Rack travel in m: 9.70...9.90  
3rd speed rpm : 300  
Rack travel in m: 9.90...10.40

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.50  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...125.0  
1000 s: (107.0...128.0)  
Rack travel in mm : 19.50...21.00

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 k 5  
Edition : 30.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 676 177Y  
  
Injection pump  
Pump designation : PE6A85D32ORS2546  
EP type number : 0 410 686 943  
Governor  
Governor design. : RSV250...1300A1C2200  
R  
Governor no. : 0 420 233 201

Customer-spec. information  
Customer : DAF

Engine : DF615

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
: (2.10...2.30)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
& maximum rack tra: 21.00  
Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.50...9.60

Del.quantity cm<sup>3</sup>/ : 4.9...5.0

100 s: (4.7...5.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.3...8.5

Del.quantity cm<sup>3</sup>/ : 1.4...1.9

100 s: (1.2...2.1)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Del.quantity : 49.0...50.0

1000 : (47.0...52.0)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

## RATED SPEED

### 1st version

Control lever

position degrees: 103...111

Testing:

1st rack travel in: 8.50  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
3rd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 7.9  
Speed rpm : 250  
Rack travel in mm : 8.30...8.50  
Rack travel in mm : 2.00  
Speed rpm : 595...655

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 400  
Rack travel in m: 9.70...9.80  
3rd speed rpm : 300  
Rack travel in m: 9.90...10.40

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...125.0  
1000 s: (107.0...128.0)  
Rack travel in mm : 19.50...21.00

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 i 8  
Edition : 30.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 676 180V  
  
Injection pump  
Pump designation : PE6A90D320RS2547  
EP type number : 0 410 696 180  
Governor  
Governor design. : RSV250...1200A5C2203  
R  
Governor no. : 0 420 233 203  
  
Customer-spec. information  
Customer : DAF

Engine : DT615

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000  
  
Inlet press., bar : 1.50  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test lines : 1 680 750 015  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 2.20...2.30  
: (2.15...2.35)  
Rack travel in mm : 7.50...10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
& maximum rack tra: 21.00  
Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 10.20...10.30  
Del.quantity cm<sup>3</sup>/ : 6.0...6.1  
100 s: (5.8...6.3)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.4)  
  
2nd speed rpm : 250.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm<sup>3</sup>/ : 0.9...1.3  
100 s: (0.7...1.5)  
Spread cm<sup>3</sup> : 0.2  
100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 3.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Aneroid pressure h: 700  
Del.quantity : 60.5...61.5  
1000 : (58.5...63.5)  
Spread cm<sup>3</sup> : 3.00  
1000 : (4.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 91...99

### Testing:

1st rack travel in: 9.20  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
3rd rack travel in: 4.00  
Speed rpm : 1175...1205  
4th rack travel in: 1340  
Speed rpm : 0.30...1.40

### LOW IDLE 1

Control lever  
position degrees: 62...70  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.5  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 585...645

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 400  
Rack travel in m: 10.40...10.50  
3rd speed rpm : 300  
Rack travel in m: 10.60...11.10

### Aneroid/Altitude Compensator Test

### 1st version

Setting  
Speed rpm : 1000  
Pressure hPa : 700  
Rack travel mm : 10.20...10.30

### Measurement

Speed 1/min : 1000

1st pressure hPa : -  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 250  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 210  
Rack travel in m: 10.00...10.30

### FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 51.5...53.5  
1000 s: (49.0...56.0)

### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1090...1100

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...145.0  
1000 s: (132.0...148.0)  
Rack travel in mm : 19.50...21.00

### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Del.quantity cm<sup>3</sup>/ : 9.0...13.0  
1000 s: (7.0...15.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (4.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 i 9  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 180X  
 Injection pump  
 Pump designation : PE6A90D32ORS2547  
 EP type number : 0 410 696 180  
 Governor  
 Governor design. : RSV250...1200A5C2203  
 R  
 Governor no. : 0 420 233 203

Customer-spec. information  
 Customer : DAF

Engine : DT615

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30  
 : (2.15...2.35)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 10.20...10.30  
 Del.quantity cm<sup>3</sup>/ : 6.0...6.1  
 100 s: (5.8...6.3)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.4)

2nd speed rpm : 250.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm<sup>3</sup>/ : 0.9...1.3  
 100 s: (0.7...1.5)  
 Spread cm<sup>3</sup> : 0.2  
 100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Aneroid pressure h: 700  
 Del.quantity : 60.5...61.5  
 1000 : (58.5...63.5)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (4.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 91...99



#### Testing:

1st rack travel in: 9.20  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
3rd rack travel in: 4.00  
Speed rpm : 1175...1205  
4th rack travel in: 1340  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 62...70  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.5  
Speed rpm : 250  
Rack travel in mm : 5.40...5.60  
Rack travel in mm : 2.00  
Speed rpm : 585...645

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 400  
Rack travel in m: 10.40...10.50  
3rd speed rpm : 300  
Rack travel in m: 10.60...11.10

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 1000  
Pressure hPa : 700  
Rack travel mm : 10.20...10.30

#### Measurement

Speed 1/min : 1000

1st pressure hPa : -  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 250  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 210  
Rack travel in m: 10.00...10.30

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm3/ : 51.5...53.5  
1000 s: (49.0...56.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...145.0  
1000 s: (132.0...148.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 9.0...13.0  
1000 s: (7.0...15.0)  
Spread cm3 : 2.50  
1000 s: (4.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8,3 n 9  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 185Y  
 Injection pump  
 Pump designation : PE6A95D41ORS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : 8SV250...1200A5C2198  
 -3L  
 Governor no. : 0 420 232 452  
 Cust. part no. : 0763026  
 Customer-spec. information  
 Customer : DAF  
 Engine : DH 825

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50

H2O

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9.90...10.00  
 Del.quantity cm3/ : 6.8...6.9  
 100 s: (6.6...7.1)  
 Spread cm3 : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 250.0  
 Rack travel in mm : 6.0...6.2  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Del.quantity : 68.5...69.5  
 1000 : (66.5...71.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 100...108

Remarks:

Testing:

1st rack travel in: 8.90  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
3rd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1375  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.6  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 650...710

TORQUE CONTROL

Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1040  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 500  
Rack travel in m: 10.60...10.70  
3rd speed rpm : 850  
Rack travel in m: 10.40...10.50  
4th speed rpm : 940  
Rack travel in m: 10.20...10.50

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 125.0...135.0  
1000 s: (122.0...138.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8,3 n10  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 192Z  
 Injection pump  
 Pump designation : PE6A95D410RS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : RSV250...750A7C2201-  
 1L  
 Governor no. : 0 420 232 563

Customer-spec. information  
 Customer : DAF

Engine : DH 825

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 11.0...11.1

100 s: (10.8...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.7...1.3

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 110.5...111.5

1000 : (108.5...113.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 12.20  
Speed rpm : 900...905  
2nd rack travel in: 4.00  
Speed rpm : 940...955  
4th rack travel in: 1090  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 71...79  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

Testing:  
Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.20  
Speed rpm : 900...905

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 7.0...13.0  
1000 s: (5.5...14.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 4,0 j  
Edition : 21.08.91  
Replaces : 19.3.91  
Test oil : ISO-4113

Combination no. : 0 400 844 095

Injection pump  
Pump designation : PES4A95D410RS2809  
EP type number : 0 410 894 993  
Governor  
Governor design. : RQV300...1400AB1065-  
23L  
Governor no. : 0 420 212 227

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0  
Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 6.5...6.6

100 s: (6.3...6.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.4...8.6

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 500  
travel mm : 2.30...2.80

3rd speed rpm : 750  
travel mm : 4.10...4.30

4th speed rpm : 1500  
travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 65.0...66.0

1000 : (63.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 111...119

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1450...1460  
2nd rack travel in: 4.00  
Speed rpm : 1535...1565  
4th rack travel in: 1670  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.60  
Speed rpm : 300  
Rack travel in mm : 8.40...8.60

CONSTANT REGULATION  
Speed rpm : 550...700

TORQUE CONTROL  
Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 400  
Rack travel in m: 10.70...10.90  
3rd speed rpm : 670  
Rack travel in m: 10.50...10.70  
4th speed rpm : 1060  
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 400  
Del.quantity cm<sup>3</sup>/ : 48.0...51.0  
1000 s: (45.5...53.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 14.80...15.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 4,0 j 1  
 Edition : 21.08.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 400 844 096

Injection pump  
 Pump designation : PES4A95D410RS2809  
 EP type number : 0 410 894 993  
 Governor  
 Governor design. : RQV300...1400AB1065-23L  
 Governor no. : 0 420 212 227

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 6.5...6.6

100 s: (6.3...6.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.4...8.6

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 65.0...66.0

1000 : (63.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED



1st version  
Control lever  
position degrees: 111...119

Testing:

1st rack travel in: 8.90  
Speed rpm : 1450...1460  
2nd rack travel in: 4.00  
Speed rpm : 1535...1565  
4th rack travel in: 1670  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 73...81

Testing:

Speed rpm : 100  
Minimum rack travel: 9.60  
Speed rpm : 300  
Rack travel in mm : 8.40...8.60

CONSTANT REGULATION

Speed rpm : 550...700

TORQUE CONTROL

Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 400  
Rack travel in m: 10.70...10.90  
3rd speed rpm : 670  
Rack travel in m: 10.50...10.70  
4th speed rpm : 1060  
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 400  
Del.quantity cm<sup>3</sup>/ : 48.0...51.0  
1000 s: (45.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 14.80...15.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 a  
 Edition : 21.08.91  
 Replaces : 6.7.90  
 Test oil : ISO-4113  
 Combination no. : 0 400 846 522  
 Injection pump  
 Pump designation : PES6A90D410RS2667  
 EP type number : 0 410 896 080  
 Governor  
 Governor design. : RQV300...1400AB1065-  
 4L  
 Governor no. : 0 420 212 168

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 100.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 8.9...9.1

Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.2

100 s: (0.4)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 600

travel mm : 2.40...4.00

3rd speed rpm : 650

travel mm : 3.70...4.20

4th speed rpm : 1450

travel mm : 8.40...8.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm3 : 3.00

1000 : (4.50)

## RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 10.10

Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1540...1570  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 74...82

Testing:  
Speed rpm : 100  
Minimum rack trave: 10.30  
Speed rpm : 300  
Rack travel in mm : 8.90...9.10

CONSTANT REGULATION  
Speed rpm : 540...680

TORQUE CONTROL  
Dimension a mm : 1.10  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 11.10...11.20  
2nd speed rpm : 500  
Rack travel in m: 12.20...12.40  
3rd speed rpm : 900  
Rack travel in m: 11.80...12.10  
4th speed rpm : 1100  
Rack travel in m: 11.40...11.70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 500  
Del.quantity cm3/ : 52.0...54.0  
1000 s: (49.5...56.5)  
Speed rpm : 900  
Del.quantity cm3/ : 55.0...58.0  
1000 s: (52.5...60.5)  
1000 s: 80.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.10  
Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100

J01

Del.quantity cm3/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 17.00...17.40

Remarks:

:  
Set shutoff stop to contact at  
3.0...3.5 mm control-rod travel.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 y 1  
 Edition : 21.08.91  
 Replaces : 18.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 846 580  
 Injection pump  
 Pump designation : PES6A95D320RS2779  
 EP type number : 0 410 896 903  
 Governor  
 Governor design. : RQV350...1350AB1248-1R  
 Governor no. : 0 420 213 121

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA 360

1st version kW : 138.0  
 Rated speed : 2700

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 110

Opening  
 pressure, bar : 250...253

Orifice plate  
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75  
 : (2.60...2.80)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 44...52

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1390...1420  
2nd rack travel in: 4.00  
Speed rpm : 1525...1535  
4th rack travel in: 1625  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 350...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.30...12.40

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.50...9.70  
2nd pressure hPa : 215  
Rack travel in m: 10.00...10.10  
3rd pressure hPa : 430  
Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 67.0...71.0  
1000 s: (65.0...73.0)

BREAKAWAY

J03

1st version  
1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 145.0...165.0  
1000 s: (140.0...170.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 17.0...21.0  
1000 s: (15.0...23.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:  
: NAVISTAR #1816728C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of  
delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 k 3  
Edition : 21.08.91  
Replaces : 2.5.90  
Test oil : ISO-4113

Combination no. : 0 400 866 141

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1250AOC2216  
-3R  
Governor no. : 0 420 233 238

Customer-spec. information  
Customer : C.D.C.

Engine : 6 CT 8.3 ltr

1st version kW : 160.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 27...29

J04

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
Rack travel in mm : 12.00...12.10  
Del.quantity cm3/ : 12.1...12.3  
100 s: (11.9...12.5)  
Spread cm3 : 0.4  
100 s: (0.6)

2nd speed rpm : 400.0  
Rack travel in mm : 5.4...5.6  
Del.quantity cm3/ : 1.7...2.1  
100 s: (1.4...2.3)  
Spread cm3 : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Del.quantity : 121.0...123.0  
1000 : (119.0...125.0)  
Spread cm3 : 4.00  
1000 : (6.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...60

Testing:

1st rack travel in: 11.00  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1355...1385  
3rd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1450  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 26...34  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.40...5.60

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 750  
Rack travel in m: 12.50...12.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 122.5...126.5  
1000 s: (120.5...128.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...155.0  
1000 s: (130.0...160.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.40...5.60  
Del.quantity cm<sup>3</sup>/ : 17.0...21.0  
1000 s: (14.5...23.5)

Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### Remarks:

: C.D.C. # 3915979

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 o  
Edition : 21.08.91  
Replaces :  
Test oil : ISO-4113

Combination no. : 0 400 866 151

Injection pump  
Pump designation : PES6A100D320/3RS2691  
-4

EP type number : 9 410 230 030

Governor

Governor design. : RSV450...1100AOC2238  
R

Governor no. : 0 420 233 254

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 151.0

Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00X2.00X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 118.5...120.5

1000 : (116.5...122.5)

Spread cm3 : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control lever

position degrees: 42...50



Testing:

1st rack travel in: 11.10  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1195...1205  
3rd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 5.0

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 450  
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 750  
Rack travel in m: 13.20...13.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.40...10.60  
2nd pressure hPa : 385  
Rack travel in m: 11.40...11.50  
3rd pressure hPa : 560  
Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 750  
Del.quantity cm3/ : 133.0...137.0  
1000 s: (131.0...139.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 78.0...80.0  
1000 s: (76.0...82.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...155.0  
1000 s: (130.0...160.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450  
Rack travel in mm : 5.40...5.60  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 6.00  
1000 s: (8.00)

Remarks:

: C.D.C. # 3915996

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 a96  
Edition : 21.08.91  
Replaces : 8.7.91  
Test oil : ISO-4113

Combination no. : 0 400 866 170

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A0C2190  
-53R  
Governor no. : 0 420 233 284

Customer-spec. information  
Customer : C.D.C.

Engine : 6 CT 8.3ltr

1st version kW : 173.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0  
Rack travel in mm : 5.6...5.8  
Del.quantity cm3/ : 1.6...2.0  
100 s: (1.3...2.2)  
Spread cm3 : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm3 : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.70  
Speed rpm : 1170...1180  
2nd rack travel in: 4.00  
Speed rpm : 1235...1245  
3rd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 25...33  
Setting point w/out bumper spring  
Speed rpm : 425  
Rack travel in mm : 5.2

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 425  
Rack travel in mm : 5.60...5.80

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1170...1180

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...155.0  
1000 s: (130.0...160.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 425  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 6.00  
1000 s: (8.00)

#### Remarks:

: C.D.C. # 3919767

Adjust stop lever to 0.5...1.0 mm  
before stop.

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 6,1 w 1  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 866 173  
Injection pump  
Pump designation : PES6A85D410/3RS2611  
EP type number : 0 410 886 902  
Governor  
Governor design. : RSV325...1200A0C2148  
-1L  
Governor no. : 0 420 232 567

Customer-spec. information  
Customer : KHD

Engine : F6L913 H

1st version kW : 85.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
: (2.45...2.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.40...10.50

Del. quantity cm<sup>3</sup>/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.4...8.6

Del. quantity cm<sup>3</sup>/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm<sup>3</sup> : 3.00

1000 : (5.00)

## RATED SPEED

1st version

Control lever

position degrees: 101...109

Testing:

1st rack travel in: 9.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1460

Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever

position degrees: 76...84

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 8.5

Speed rpm : 325

Rack travel in mm : 8.40...8.60

Rack travel in mm : 2.00

Speed rpm : 450...510

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 11.10...11.30

4th speed rpm : 1000

Rack travel in m: 10.80...11.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800

Del.quantity cm3/ : 54.0...56.0

1000 s: (51.5...58.5)

Speed rpm : 1000

Del.quantity cm3/ : 60.0...62.0

1000 s: (57.5...64.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 17.60...18.00

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o10  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 332Z  
 Injection pump  
 Pump designation : PES6A95D320RS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV300...1300A0C2206  
 R  
 Governor no. : 0 420 233 204  
 Cust. part no. : 0082297/0

Customer-spec. information  
 Customer : DAF

Engine : DNTD 620

1st version kW : 110.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 650  
 Rack travel in mm : 10.60...10.70  
 Del.quantity cm3/ : 6.0...6.1  
 100 s: (5.8...6.3)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.3...6.5  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 650  
 Del.quantity : 60.5...61.5  
 1000 : (58.5...63.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 89...97

Testing:

1st rack travel in: 9.10  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1110...1140  
3rd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1290  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1025  
Rack travel in m: 10.10...10.30  
2nd speed rpm : 500  
Rack travel in m: 10.60...10.70  
4th speed rpm : 875  
Rack travel in m: 10.40...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1025  
Del.quantity cm<sup>3</sup>/ : 61.0...63.0  
1000 s: (58.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 9.10  
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 130.0...145.0  
1000 s: (127.0...148.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 c 2  
 Edition : 21.08.91  
 Replaces : 3.3.89  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 335  
 Injection pump  
 Pump designation : PES6A90D410RS2710  
 EP type number : 0 410 896 082  
 Governor  
 Governor design. : RSV350...1200A1C1154  
 L  
 Governor no. : 0 420 232 468

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 74.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 5.1...5.2

100 s: (4.9...5.4)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 370.0

Rack travel in mm : 7.9...8.5

Del.quantity cm3/ : 1.0...1.2

100 s: (0.8...1.4)

Spread cm3 : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 51.0...52.0

1000 : (49.0...54.0)

Spread cm3 : 3.00

1000 : (4.50)

## RATED SPEED

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 8.30

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1267...1280

3rd rack travel in: 4.00



Speed rpm : 1300...1330  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40  
5th rack travel in: 1255...1265  
Speed rpm : 8.30

#### LOW IDLE 1

Control lever  
position degrees: -3  
Setting point w/out bumper spring  
Speed rpm : 370  
Rack travel in mm : 8.2

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 370  
Rack travel in mm : 8.10...8.30  
Rack travel in mm : 2.00  
Speed rpm : 460...520

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 600  
Rack travel in m: 10.00...10.20  
3rd speed rpm : 900  
Rack travel in m: 9.80...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 41.0...43.0  
1000 s: (38.5...45.5)  
Speed rpm : 900  
Del.quantity cm3/ : 46.0...49.0  
1000 s: (43.5...51.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1240...1245

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 85.0...95.0  
1000 s: (82.0...98.0)  
Rack travel in mm : 16.80...17.20

#### LOW IDLE

Speed rpm : 370  
Rack travel in mm : 7.90...8.50  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (8.0...14.0)  
Spread cm3 : 2.50  
1000 s: (4.50)

Remarks:

#### APPLICATION

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# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 e 1  
Edition : 21.08.91  
Replaces : 17.7.90  
Test oil : ISO-4113

Combination no. : 0 400 876 372

Injection pump  
Pump designation : PES6A100D410RS2764-1  
EP type number : 0 410 806 007  
Governor  
Governor design. : RSV600...1100A2C2161  
-7L  
Governor no. : 0 420 232 540

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466AZ003

1st version kW : 164.0  
Rated speed : 1100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 190...200

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55  
(2.40...2.60)  
Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 600.0  
Rack travel in mm : 6.0...6.2  
Del.quantity cm3/ : 1.7...2.1  
100 s: (1.5...2.3)

Spread cm3 : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 2.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h: 900  
Del.quantity : 126.5...128.5  
1000 : (124.5...130.5)  
Spread cm3 : 4.00  
1000 : (6.50)

## RATED SPEED

1st version

Control Lever  
position degrees: 37...45

Testing:

1st rack travel in: 12.10  
Speed rpm : 1145...1155  
2nd rack travel in: 4.00  
Speed rpm : 1195...1205  
3rd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 600  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 600  
Rack travel in mm : 6.00...6.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.30...9.50

Measurement

Speed 1/min : 500

1st pressure hPa : 175  
Rack travel in m: 10.30...10.40  
2nd pressure hPa : 280  
Rack travel in m: 12.10...12.50  
3rd pressure hPa : 900  
Rack travel in m: 13.10...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 68.0...72.0  
1000 s: (66.0...74.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (175.0...205.0)

LOW IDLE

Speed rpm : 600  
Rack travel in mm : 6.00...6.20  
Del.quantity cm<sup>3</sup>/ : 17.0...21.0  
1000 s: (15.0...23.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE44661  
Start-of-delivery mark at control-rod  
travel 10.5 mm and 15° after start of  
delivery.

Starting/full-load transition speed  
from holding magnet = 450 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 e 2  
Edition : 21.08.91  
Replaces : 17.9.90  
Test oil : ISO-4113

Combination no. : 0 400 876 373

Injection pump  
Pump designation : PES6A100D410RS2764-1  
EP type number : 0 410 806 007  
Governor  
Governor design. : RSV600...1100A2C2161  
-8L  
Governor no. : 0 420 232 541

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466AZ004

1st version kW : 150.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 190...200

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55  
: (2.40...2.60)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.40...12.50

Del.quantity cm<sup>3</sup>/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.6)

2nd speed rpm : 600.0

Rack travel in mm : 6.3...6.5

Del.quantity cm<sup>3</sup>/ : 1.9...2.3

100 s: (1.7...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 117.5...119.5

1000 : (115.5...121.5)

Spread cm<sup>3</sup> : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control Lever  
position degrees: 41...49

Testing:

1st rack travel in: 11.40  
Speed rpm : 1155...1165  
2nd rack travel in: 4.00  
Speed rpm : 1220...1230  
3rd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 600  
Rack travel in mm : 5.9

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 600  
Rack travel in mm : 6.30...6.50

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.40...12.50  
2nd speed rpm : 750  
Rack travel in m: 14.00...14.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.60...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : 95  
Rack travel in m: 10.60...10.70  
2nd pressure hPa : 200  
Rack travel in m: 12.60...13.00  
3rd pressure hPa : 900  
Rack travel in m: 14.00...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 750

Del.quantity cm<sup>3</sup>/ : 140.5...144.5  
1000 s: (138.5...146.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 70.5...74.5  
1000 s: (68.5...76.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.40  
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (175.0...205.0)

LOW IDLE

Speed rpm : 600  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 19.0...23.0  
1000 s: (17.0...25.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE44662  
Start-of-delivery mark = 15.5° after  
start of delivery cyl. 1.

Starting/full-load transition speed  
from holding magnet = 450 1/min.

Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 q 5  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 375Y  
 Injection pump  
 Pump designation : PES6A95D32ORS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV300...1300AOC2251  
 R  
 Governor no. : 0 420 233 272  
 Cust. part no. : 1207950/0

Customer spec. information  
 Customer : DAF

Engine : NT 116

1st version kW : 119.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 650  
 Rack travel in mm : 10.50...10.80  
 Del. quantity cm<sup>3</sup>/ : 6.1...6.2  
 100 s: (5.9...6.4)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.0...6.2  
 Del. quantity cm<sup>3</sup>/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 650  
 Del. quantity : 61.5...62.5  
 1000 : (59.5...64.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 95...103

Testing:

1st rack travel in: 9.00  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
3rd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1310  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 74...82  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1025  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 500  
Rack travel in m: 11.00...11.10  
3rd speed rpm : 950  
Rack travel in m: 10.20...10.40  
4th speed rpm : 850  
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1025  
Del.quantity cm3/ : 60.0...62.0  
1000 s: (57.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1070...1080

LOW IDLE

Speed rpm : 300

J21

Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 q 6  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 375Z  
 Injection pump  
 Pump designation : PES6A95D320RS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV300...1300AOC2251  
 R  
 Governor no. : 0 420 233 272

Cust. part no. : 1209590

Customer-spec. information  
 Customer : DAF

Engine : NT 116

1st version kW : 119.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.5...7.6

100 s: (7.3...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 75.5...76.5

1000 : (73.5...78.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED



1st version  
Control Lever  
position degrees: 95...103

Testing:

1st rack travel in: 10.50  
Speed rpm : 1185...1195  
2nd rack travel in: 4.00  
Speed rpm : 1250...1280  
3rd rack travel in: 4.00  
Speed rpm : 1280...1310  
4th rack travel in: 1440  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1140  
Rack travel in m: 11.40...11.50  
2nd speed rpm : 500  
Rack travel in m: 11.50...11.60

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.50  
Speed rpm : 1185...1195

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.00...6.20  
Del.quantity cm3/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 d 5  
Edition : 21.08.91  
Replaces : 7.1.91  
Test oil : ISO-4113

Combination no. : 0 400 876 382

Injection pump  
Pump designation : PES6A100D410RS2762-1  
EP type number : 0 410 806 008  
Governor  
Governor design. : RSV475...1100A2C2204  
-7L  
Governor no. : 0 420 232 550

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6076ADW03

1st version kW : 146.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 190...200

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05  
: (2.90...3.10)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 475.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.8...2.2

100 s: (1.6...2.5)

Spread cm3 : 0.6

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control lever  
position degrees: 42...50

Testing:

1st rack travel in: 10.70  
Speed rpm : 1150...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1230  
3rd rack travel in: 4.00  
Speed rpm : 1210...1240  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 475  
Rack travel in mm : 4.6

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 475  
Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 700  
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 144.0...148.0  
1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 475

J25

Rack travel in mm : 5.00...5.20  
Del.quantity cm<sup>3</sup>/ : 18.5...22.5  
1000 s: (16.0...25.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47357  
Start-of-delivery mark = 13,5° after  
start of delivery cyl. 1.

Starting/full-load transition speed  
from holding magnet = 450 1/min.

Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o11  
Edition : 30.08.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 390V  
Injection pump  
Pump designation : PES6A95D32ORS2693  
EP type number : 0 410 896 914  
Governor  
Governor design. : RSV250...750A7C2206-3R  
Governor no. : 0 420 233 283  
Cust. part no. : 0763023/0  
Customer-spec. information  
Customer : DAF

Engine : DNDT 620

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.50  
Test nozzle holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
& maximum rack tra: 21.00  
Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 13.70...13.80  
Del.quantity cm3/ : 10.2...10.3  
100 s: (10.0...10.5)  
Spread cm3 : 0.3  
100 s: (0.6)  
2nd speed rpm : 300.0  
Rack travel in mm : 6.4...6.6  
Del.quantity cm3/ : 0.7...1.1  
100 s: (0.4...1.3)  
Spread cm3 : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Del.quantity : 102.5...103.5  
1000 : (100.5...105.5)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 104...112

Testing:

1st rack travel in: 12.70  
Speed rpm : 895...900  
2nd rack travel in: 4.00  
Speed rpm : 939...954  
4th rack travel in: 1090  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 100  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.70  
Speed rpm : 895...900

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o12  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 390W  
 Injection pump  
 Pump designation : PES6A95D32ORS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV250...750A7C2206-  
 3R  
 Governor no. : 0 420 233 283  
 Cust. part no. : 0763022/0  
 Customer-spec. information  
 Customer : DAF  
 Engine : DNDT 620

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 13.70...13.80  
 Del.quantity cm3/ : 10.2...10.3  
 100 s: (10.0...10.5)  
 Spread cm3 : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...6.6  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 102.5...103.5  
 1000 : (100.5...105.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 91...99

Testing:

1st rack travel in: 12.70

Speed rpm : 745...750

2nd rack travel in: 4.00

Speed rpm : 779...794

4th rack travel in: 935

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 300...360

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 745...750

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm<sup>3</sup>/ : 7.0...11.0

1000 s: (4.5...13.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o13  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 390X  
 Injection pump  
 Pump designation : PES6A95D32ORS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV250...750A7C2206-3R  
 Governor no. : 0 420 233 283  
 Cust. part no. : 0763008/0  
 Customer-spec. information  
 Customer : DAF  
 Engine : DNDT 620

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

K02

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 13.20...13.30  
 Del.quantity cm3/ : 9.5...9.6  
 100 s: (9.3...9.8)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...6.6  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 95.5...96.5  
 1000 : (93.5...98.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 104...112



Testing:

1st rack travel in: 12.20  
Speed rpm : 859....900  
2nd rack travel in: 4.00  
Speed rpm : 936...951  
4th rack travel in: 1090  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 895...900

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o14  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 390Y  
 Injection pump  
 Pump designation : PES6A950320RS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV250...750A7C2206-  
 3R  
 Governor no. : 0 420 233 283  
 Cust. part no. : 0763007/0  
 Customer spec. information  
 Customer : DAF  
 Engine : DNDT 620

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

K04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 13.20...13.30  
 Del.quantity cm3/ : 9.5...9.6  
 100 s: (9.3...9.8)  
 Spread cm3 : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...6.6  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 95.5...96.5  
 1000 : (93.5...98.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 91...99

Testing:

1st rack travel in: 12.20  
Speed rpm : 745...750  
2nd rack travel in: 4.00  
Speed rpm : 777...792  
4th rack travel in: 935  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 300...360

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 745...750

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 o15  
 Edition : 30.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 390Z  
 Injection pump  
 Pump designation : PES6A95D32ORS2693  
 EP type number : 0 410 896 914  
 Governor  
 Governor design. : RSV250...750A7C2206-3R  
 Governor no. : 0 420 233 283  
 Cust. part no. : 0763006/1  
 Customer-spec. information  
 Customer : DAF  
 Engine : DNDT 620

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

K06

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 12.70...12.80  
 Del.quantity cm3/ : 8.7...8.8  
 100 s: (8.5...9.0)  
 Spread cm3 : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...6.6  
 Del.quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 87.5...88.5  
 1000 : (85.5...90.5)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 104...112

Testing:

1st rack travel in: 11.70

Speed rpm : 895...900

2nd rack travel in: 4.00

Speed rpm : 933...948

4th rack travel in: 1090

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 73...81

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 895...900

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm<sup>3</sup>/ : 7.0...11.0

1000 s: (4.5...13.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 d 7  
 Edition : 21.08.91  
 Replaces : 18.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 391  
 Injection pump  
 Pump designation : PES6A100D410RS2762-1  
 EP type number : 0 410 806 008  
 Governor  
 Governor design. : RSV425...1100A2C2225  
 -5L  
 Governor no. : 0 420 232 566

Customer spec. information  
 Customer : JOHN DEERE

Engine : 6076ARW-09

1st version kW : 145.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness : 6.00X2.00X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 27...29

K08

Prestroke mm : 2.95...3.05  
 : (2.90...3.10)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm3 : 0.6

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm3 : 4.00

1000 : (6.50)

## RATED SPEED

1st version

Control lever

position degrees: 37...45

#### Testing:

1st rack travel in: 10.80  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1205...1215  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 425  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 425  
Rack travel in mm : 5.70...5.90

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.80...11.90  
2nd speed rpm : 650  
Rack travel in m: 13.70...13.90

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 13.70...13.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.70...11.90  
2nd pressure hPa : 535  
Rack travel in m: 12.30...12.40  
3rd pressure hPa : 720  
Rack travel in m: 13.30...13.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 147.5...150.5  
1000 s: (145.0...153.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 129.0...133.0  
1000 s: (126.0...136.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (95.0...125.0)

#### LOW IDLE

Speed rpm : 425  
Rack travel in mm : 5.70...5.90  
Del.quantity cm<sup>3</sup>/ : 26.0...30.0  
1000 s: (24.0...32.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### Remarks:

: JOHN DEERE # RE47502

Start-of-delivery mark = 13,5° after  
start of delivery cyl. 1.

Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Starting/full-load transition speed  
from holding magnet = 450 1/min.

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SAC 21,0 a  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 830 716  
Injection pump  
Pump designation : PE12P100A520/6RS3287  
EP type number : 0 411 800 704  
Governor  
Governor design. : RQV375...1000PA639-2  
Governor no. : 0 421 813 514

Customer-spec. information  
Customer : SACM

Engine : UD 18-V 12 R 1

1st version kW : 220.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 15.00...18.00

K10

Firing order : 1- 8- 5- 10- 3- 7-  
6- 11- 2- 9- 4- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0  
Rack travel in mm : 5.7...6.1  
Del.quantity cm3/ : 1.2...1.6  
100 s: (0.9...1.8)  
Spread cm3 : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1045  
travel mm : 8.30...8.50  
2nd speed rpm : 250  
travel mm : 0.70...1.30  
3rd speed rpm : 375  
travel mm : 3.00...3.40  
4th speed rpm : 650  
travel mm : 5.00...5.40  
5th speed rpm : 1350  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1160  
Rack travel in mm : 8.90...11.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 94.0...96.0  
1000 : (92.0...98.0)  
Spread cm3 : 3.50  
1000 : (6.00)



## RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 9.20

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1105...1135

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 79...87

Testing:

Speed rpm : 100

Minimum rack travel: 7.40

Speed rpm : 375

Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

Speed rpm : 300...420

START CUT-OUT

Speed 1/min : 320 (340)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 220.0...240.0

1000 s: (216.0...244.0)

LOW IDLE

Speed rpm : 375

Rack travel in mm : 5.70...6.10

Del.quantity cm<sup>3</sup>/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Rail tractor

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 a 1  
Edition : 21.08.91  
Replaces : 7.4.89  
Test oil : ISO-4113

Combination no. : 0 401 846 261

Injection pump  
Pump designation : PE6P100A320LS805  
EP type number : 0 411 806 148  
Governor  
Governor design. : RQ300/1250PA187R  
Governor no. : 0 421 801 034

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM401

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.40...3.50  
: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.6)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.80...14.60

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 107.0...109.0

1000 : (105.0...111.0)

Spread cm3 : 3.00

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.2

Testing:

1st rack travel in: 10.10

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1345...1375

4th rack travel in: 1450

Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.0

#### Testing:

Speed rpm : 100

Minimum rack trave: 9.50

Speed rpm : 300

Rack travel in mm : 7.90...8.10

Rack travel in mm : 2.00

Speed rpm : 420...450

#### TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 11.10...11.20

2nd speed rpm : 600

Rack travel in m: 11.10...11.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 85.0...90.0

1000 s: (83.0...92.0)

Spread cm<sup>3</sup> : 4.00

1000 s: (7.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 110.0...130.0

1000 s: (106.0...134.0)

#### HIGH IDLE

##### 1st version

Rack travel in mm : 3.90...4.10

Spread cm<sup>3</sup> : 4.00

1000 s: (6.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 h  
Edition : 21.08.91  
Replaces : 18.2.91  
Test oil : ISO-4113

Combination no. : 0 401 846 916

Injection pump  
Pump designation : PE6P120A32ORS3248  
EP type number : 0 411 826 792  
Governor  
Governor design. : RQ250/1000PA832-3  
Governor no. : 0 421 801 506

Customer spec. information  
Customer : DAF

Engine : WS 242

1st version kW : 242.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30  
: (4.15...4.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.4...2.0  
100 s: (1.1...2.3)

Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 209.0...211.0  
1000 : (206.0...214.0)

Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.50

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1125...1155  
4th rack travel in: 1250  
Speed rpm : 0.00...1.40

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 335...375

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 13.50...13.60  
2nd speed rpm : 1000  
Rack travel in m: 13.40...13.60

#### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 12.50...12.60

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.00...11.20  
2nd pressure hPa : 340  
Rack travel in m: 12.10...12.20  
3rd pressure hPa : 250  
Rack travel in m: 11.40...11.60

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 164.0...166.0  
1000 s: (161.0...169.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1035...1050

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 5,9 b  
 Edition : 23.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 937  
 Injection pump  
 Pump designation : PE6P110A320RS3266  
 EP type number : 0 411 816 777  
 Governor  
 Governor design. : RQV300...1300PA996K  
 Governor no. : 0 421 815 277

Customer-spec. information  
 Customer : VOLVO-TRUCK

Engine : TD63ES

1st version kW : 155.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.40...2.50  
 : (2.30...2.50)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 780

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 330.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.4)

Spread cm3 : 0.7

100 s: (1.1)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 330  
 travel mm : 1.20...1.60

2nd speed rpm : 500  
 travel mm : 2.90...3.50

3rd speed rpm : 900  
 travel mm : 4.70...5.30

4th speed rpm : 1370  
 travel mm : 9.80...10.00

5th speed rpm : 1450  
 travel mm : 11.00...11.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 6.00...12.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 780

Aneroid pressure h: 1000

Del.quantity : 131.0...133.0  
1000 : (129.0...135.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 123...131

Testing:  
1st rack travel in: 11.10  
Speed rpm : 1360...1370  
2nd rack travel in: 4.00  
Speed rpm : 1430...1460  
4th rack travel in: 1520  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 78...86

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.00  
Speed rpm : 330  
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION  
Speed rpm : 330...600

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 780  
Rack travel in m: 11.50...11.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1300  
Pressure hPa : 1000  
Rack travel mm : 12.10...12.20

Measurement  
Speed 1/min : 1300

1st pressure hPa : -  
Rack travel in m: 8.50...8.70  
2nd pressure hPa : 110  
Rack travel in m: 8.70...8.80  
3rd pressure hPa : 650  
Rack travel in m: 11.00...11.20

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm3/ : 129.0...133.0  
1000 s: (126.0...136.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 780  
Del.quantity cm3/ : 73.0...75.0  
1000 s: (70.0...78.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.10  
Speed rpm : 1360...1370

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...130.0  
1000 s: (96.0...134.0)  
Rack travel in mm : 10.40...10.90

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

Start-of-delivery setting with ROBO  
diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 5,9 b 1  
 Edition : 23.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 938  
 Injection pump  
 Pump designation : PE6P110A320RS3266  
 EP type number : 0 412 816 777  
 Governor  
 Governor design. : RQV300...1300PA996-1  
 K  
 Governor no. : 0 421 815 278

Customer-spec. information  
 Customer : VOLVO-TRUCK

Engine : TD63E

1st version kW : 133.0  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.40...2.50  
 : (2.30...2.50)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 780

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 330.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.4)

Spread cm3 : 0.7

100 s: (1.1)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 330  
 travel mm : 1.20...1.60

2nd speed rpm : 500  
 travel mm : 2.90...3.50

3rd speed rpm : 900  
 travel mm : 4.70...5.30

4th speed rpm : 1370  
 travel mm : 9.80...10.00

5th speed rpm : 1450  
 travel mm : 11.00...11.40

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1470

Rack travel in mm : 6.00...12.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 780



Aneroid pressure h: 1000  
Del.quantity : 97.0...99.0  
1000 : (95.0...101.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 123...131

Testing:  
1st rack travel in: 10.30  
Speed rpm : 1360...1370  
2nd rack travel in: 4.00  
Speed rpm : 1420...1450  
4th rack travel in: 1520  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 78...86

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.00  
Speed rpm : 330  
Rack travel in mm : 5.40...5.60

#### CONSTANT REGULATION

Speed rpm : 330...600

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 780  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 1050  
Rack travel in m: 10.80...10.90  
3rd speed rpm : 1300  
Rack travel in m: 11.30...11.50

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 1300  
Pressure hPa : 1000  
Rack travel mm : 11.30...11.50

#### Measurement

Speed 1/min : 1300

1st pressure hPa : -  
Rack travel in m: 8.50...8.70  
2nd pressure hPa : 110  
Rack travel in m: 8.70...8.80

3rd pressure hPa : 540  
Rack travel in m: 10.70...10.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 110.0...114.0  
1000 s: (107.0...117.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1000  
Speed rpm : 1300  
Del.quantity cm<sup>3</sup>/ : 118.0...124.0  
1000 s: (115.0...127.0)  
Aneroid pressure h: -  
Speed rpm : 780  
Del.quantity cm<sup>3</sup>/ : 73.0...75.0  
1000 s: (70.0...78.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1360...1370

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...130.0  
1000 s: (96.0...134.0)  
Rack travel in mm : 10.40...10.90

#### LOW IDLE

Speed rpm : 330  
Rack travel in mm : 5.40...5.60  
Del.quantity cm<sup>3</sup>/ : 17.0...21.0  
1000 s: (14.0...24.0)  
Spread cm<sup>3</sup> : 7.00  
1000 s: (11.00)

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

Start-of-delivery setting with ROBO  
diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 12,2 a3  
 Edition : 23.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 948  
 Injection pump  
 Pump designation : PE6P120A320RS3206-1  
 EP type number : 0 411 826 775  
 Governor  
 Governor design. : RQ750PA783-2  
 Governor no. : 0 421 801 600

Customer spec. information  
 Customer : PENTA

Engine : TWD 121 OG

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Rack travel in mm : 9.00...12.00

K20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 11.60...11.70  
 Del.quantity cm3/ : 26.6...26.8  
 100 s: (26.3...27.1)  
 Spread cm3 : 0.5  
 100 s: (0.9)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 4.8...5.2  
 Del.quantity cm3/ : 1.7...2.3  
 100 s: (1.4...2.6)  
 Spread cm3 : 0.4  
 100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 266.0...268.0  
 1000 : (263.0...271.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 84...92

Testing:  
 1st rack travel in: 10.60  
 Speed rpm : 748...753  
 2nd rack travel in: 4.00  
 Speed rpm : 773...786  
 4th rack travel in: 850  
 Speed rpm : 0.00...1.00

## BREAKAWAY

1st version  
 1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 748...753

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 11,0 y5  
 Edition : 23.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 957  
 Injection pump  
 Pump designation : PE6P110A72ORS3115  
 EP type number : 0 411 816 735  
 Governor  
 Governor design. : RQV250...1100PA468-1  
 Governor no. : 0 421 813 956

Customer spec. information  
 Customer : SCANIA

Engine : DN11 08

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 3.30...3.40  
 : (3.25...3.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 11.2...11.4  
 100 s: (11.0...11.6)

Spread cm3 : 0.5  
 100 s: (0.7)

2nd speed rpm : 250.0  
 Rack travel in mm : 4.5...4.8  
 Del.quantity cm3/ : 1.2...1.6  
 100 s: (-)  
 Spread cm3 : 0.2  
 100 s: (0.4)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.20...1.60  
 2nd speed rpm : 350  
 travel mm : 2.40...3.00  
 3rd speed rpm : 650  
 travel mm : 4.60...5.20  
 4th speed rpm : 1145  
 travel mm : 8.60...8.80  
 5th speed rpm : 1255  
 travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1125  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 112.0...114.0  
 1000 : (110.0...116.0)  
 Spread cm3 : 5.00  
 1000 : (7.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 10.70  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1240...1270  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 62...70

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.10  
Speed rpm : 250  
Rack travel in mm : 4.50...4.70  
Rack travel in mm : 2.00  
Speed rpm : 360...420

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 113.5...118.5  
1000 s: (111.0...121.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.70  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.50...4.70

Remarks:

:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO  
diaphragm.

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE 12,0 a  
Edition : 21.08.91  
Replaces : 16.2.90  
Test oil : ISO-4113

Combination no. : 0 401 876 770

Injection pump  
Pump designation : PE6P110A32OLS3852  
EP type number : 0 411 816 768  
Governor  
Governor design. : RSV400...900P1A544  
Governor no. : 0 421 833 326

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9306 T

1st version kW : 172.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
: (3.75...3.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 3- 5- 2- 4

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 890

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 13.8...14.1

100 s: (13.5...14.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.3...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

Del.quantity : 138.0...141.0

1000 : (135.5...143.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

1st rack travel in: 10.70

Speed rpm : 930...940

2nd rack travel in: 4.00

Speed rpm : 945...975

3rd rack travel in: 4.00  
Speed rpm : 950...980  
4th rack travel in: 1120  
Speed rpm : 0.30...1.40

Remarks:

:

LOW IDLE 1  
Control Lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.4  
Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.00  
Speed rpm : 450...510

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 890  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 500  
Rack travel in m: 11.70...11.90  
3rd speed rpm : 420  
Rack travel in m: 12.90...13.50

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 140.0...144.0  
1000 s: (137.0...147.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.70  
Speed rpm : 930...940

INTERMEDIATE RATED SPEED  
Rack travel in mm : 4.00

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Del.quantity cm<sup>3</sup>/ : 13.0...18.0  
1000 s: (10.5...20.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE 12,0 a1  
 Edition : 21.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 770A  
 Injection pump  
 Pump designation : PE6P110A320LS3852  
 EP type number : 0 411 816 768  
 Governor  
 Governor design. : RSV400...900P1A544  
 Governor no. : 0 421 833 326

Customer-spec. information  
 Customer : LIEBHERR

Engine : D 9306 TB

1st version kW : 132.0  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
 : (3.75...3.95)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 3- 5- 2- 4

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 890

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 13.3...13.5

100 s: (13.0...13.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.3...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

Del.quantity : 133.0...135.0

1000 : (130.5...137.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 10.30

Speed rpm : 930...940

2nd rack travel in: 6.40

Speed rpm : 955...985



4th rack travel in: 1120  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.4

Speed rpm : 400

Rack travel in mm : 5.80...6.00

Rack travel in mm : 2.00

Speed rpm : 450...510

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 890

Rack travel in m: 11.30...11.40

2nd speed rpm : 500

Rack travel in m: 11.30...11.50

3rd speed rpm : 420

Rack travel in m: 12.50...13.10

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/ : 132.0...136.0

1000 s: (129.0...139.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 930...940

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...170.0

1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00

Del.quantity cm3/ : 13.0...18.0

1000 s: (10.5...20.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE 12,0 a2  
 Edition : 21.08.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 770C  
 Injection pump  
 Pump designation : PE6P110A320LS3852  
 EP type number : 0 411 816 768  
 Governor  
 Governor design. : RSV400...900P1A<sup>5</sup>44  
 Governor no. : 0 421 833 326

Customer-spec. information  
 Customer : LIEBHERR

Engine : D 9306 TI

1st version kW : 220.0  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
 : (3.75...3.95)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 3- 5- 2- 4

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 890

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 19.5...19.7

100 s: (19.2...19.9)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.3...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

Del.quantity : 195.0...197.0

1000 : (192.5...199.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 13.50

Speed rpm : 930...940

2nd rack travel in: 6.40

Speed rpm : 980...1010

4th rack travel in: 1120  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control Lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.4  
Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.00  
Speed rpm : 450...510

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 890  
Rack travel in m: 14.50...14.60  
2nd speed rpm : 500  
Rack travel in m: 14.50...14.70  
3rd speed rpm : 420  
Rack travel in m: 15.70...16.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500  
Del.quantity cm3/ : 200.0...204.0  
1000 s: (197.0...207.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 13.50  
Speed rpm : 930...940

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Del.quantity cm3/ : 13.0...18.0  
1000 s: (10.5...20.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8,3 s  
Edition : 27.05.91  
Replaces : 28.3.91  
Test oil : ISO-4113

Combination no. : 0 401 876 783

Injection pump  
Pump designation : PE6P110A720RS3225  
EP type number : 0 411 816 763  
Governor  
Governor design. : RSV250...750P7A507-2  
Governor no. : 0 421 833 353

Customer-spec. information  
Customer : DAF

Engine : Hs AG

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

### 1st version

Control lever

position degrees: 90...98

### Testing:

1st rack travel in: 11.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

## LOW IDLE 1

Control lever

position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 5.3  
Speed rpm : 325  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 345...385

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 750...755

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 5.20...5.40

Remarks:

:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8,3 s 1  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 876 783  
  
Injection pump  
Pump designation : PE6P110A720RS3225  
EP type number : 0 411 816 763  
Governor  
Governor design. : RSV325...750P7A507-4  
Governor no. : 0 421 833 362

Customer-spec. information  
Customer : DAF

Engine : Hs AG

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.50  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test lines : 1 680 750 015  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 12.90...13.00  
Del.quantity cm3/ : 12.4...12.6  
100 s: (12.2...12.8)  
Spread cm3 : 0.4  
100 s: (0.7)  
  
2nd speed rpm : 325.0  
Rack travel in mm : 7.3...7.5  
Del.quantity cm3/ : 1.3...1.7  
100 s: (1.0...1.9)  
Spread cm3 : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Del.quantity : 124.0...126.0  
1000 : (122.0...128.0)  
Spread cm3 : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 90...98

Testing:  
1st rack travel in: 11.90  
Speed rpm : 750...755  
2nd rack travel in: 4.00  
Speed rpm : 780...795  
4th rack travel in: 950  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever

position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 5.3  
Speed rpm : 325  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 345...385

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 750...755

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 5.20...5.40

Remarks:

:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 z 1  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 876 788  
Injection pump  
Pump designation : PE6P110A320LS3835-3  
EP type number : 0 411 816 773  
Governor  
Governor design. : RSV350...1050POA531-  
3  
Governor no. : 0 421 833 363

Customer-spec. information  
Customer : MB-NFZ

Engine : OM 441

1st version kW : 160.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm<sup>3</sup>/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 350.0  
Rack travel in mm : 8.3...8.9  
Del.quantity cm<sup>3</sup>/ : 1.2...1.8  
100 s: (0.9...2.0)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Del.quantity : 136.0...138.0  
1000 : (133.5...140.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (8.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 88...96

Testing:  
1st rack travel in: 11.70



Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1115...1133  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 64...72  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 8.6

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 8.30...8.90  
Rack travel in mm : 2.00  
Speed rpm : 380...440

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 124.0...128.0  
1000 s: (121.0...131.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.70  
Speed rpm : 1070...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

Observe VDT-I-420/120

#### APPLICATION

Excavator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9a46  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 036 087  
  
Injection pump  
Pump designation : PES6P120A720/3LS470-  
2  
EP type number : 0 412 026 050  
Governor  
Governor design. : RQ300/1050PA813-21  
Governor no. : 0 421 801 605

Customer-spec. information  
Customer : MAN

Engine : D2866TUH/001

1st version kW : 222.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

L08

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 19.5...19.7

100 s: (19.2...20.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.2...5.4  
Del.quantity cm3/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 750  
Aneroid pressure h: 1000  
Del.quantity : 195.0...197.0  
1000 : (192.0...200.0)  
Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 750  
Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.20  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 390...430

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 1050  
Rack travel in m: 11.50...11.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.20...11.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 270  
Rack travel in m: 9.10...9.20  
3rd pressure hPa : 450  
Rack travel in m: 10.10...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050  
Del.quantity cm3/ : 204.0...208.0  
1000 s: (201.0...211.0)

L09

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7167

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 7,7 a  
Edition : 23.08.91  
Replaces : 26.7.91  
Test oil : ISO-4113

Combination no. : 0 402 046 815

Injection pump  
Pump designation : PES6P120A720RS3249  
EP type number : 0 412 026 737  
Governor  
Governor design. : RQV300...1100PA954K  
Governor no. : 0 421 815 243

Customer-spec. information  
Customer : IVECO-UNIC

Engine : 8360.46.417

1st version kW : 196.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.0...4.4

Del.quantity cm3/ : 2.0...2.6  
100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1160  
travel mm : 10.60...10.80

2nd speed rpm : 300  
travel mm : 1.00...1.40

3rd speed rpm : 850  
travel mm : 6.60...7.00

4th speed rpm : 1350  
travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1500

Del.quantity : 211.0...213.0

1000 : (208.0...216.0)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.60  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 14.00  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 49...57

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.70  
Speed rpm : 300  
Rack travel in mm : 4.10...4.30  
Rack travel in mm : 2.00  
Speed rpm : 330...390

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.50...12.60  
2nd speed rpm : 700  
Rack travel in m: 11.40...11.70  
3rd speed rpm : 300  
Rack travel in m: 9.00...9.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1100  
Pressure hPa : 1500  
Rack travel mm : 12.60...14.00

Measurement  
Speed 1/min : 1100

1st pressure hPa : -  
Rack travel in m: 8.10...8.30  
2nd pressure hPa : 810  
Rack travel in m: 11.40...11.50  
3rd pressure hPa : 430  
Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 182.0...188.0  
1000 s: (179.0...191.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 96.0...98.0  
1000 s: (93.0...101.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.60  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (96.0...124.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.00...4.40  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
1000 s: (17.0...29.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 12,0 j  
Edition : 23.08.91  
Replaces : 14.12.90  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 819  
  
Injection pump  
Pump designation : PES6P120A320RS3269  
EP type number : 0 412 026 743  
Governor  
Governor design. : RQV275...1000PA983  
Governor no. : 0 421 813 903

Customer-spec. information  
Customer : RVI

Engine : MIDR 06 35 40 L

1st version kW : 283.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values —

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.5...5.9

Del.quantity cm3/ : 2.3...2.9

100 s: (2.0...3.2)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1070

travel mm : 7.70...7.90

2nd speed rpm : 275

travel mm : 0.70...1.10

3rd speed rpm : 500

travel mm : 3.50...4.10

4th speed rpm : 750

travel mm : 5.30...5.70

5th speed rpm : 1450

travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 296...304

#### Testing:

1st rack travel in: 12.00  
Speed rpm : 1065...1075  
2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 247...255

#### Testing:

Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 275  
Rack travel in mm : 5.60...5.80

#### CONSTANT REGULATION

Speed rpm : 310...420

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.00...13.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.80  
2nd pressure hPa : 440  
Rack travel in m: 12.40...12.60  
3rd pressure hPa : 200  
Rack travel in m: 10.30...10.70

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000

Del.quantity cm3/ : 242.0...248.0  
1000 s: (239.0...251.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 129.0...131.0  
1000 s: (126.0...134.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1065...1075

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.90  
Del.quantity cm3/ : 23.0...29.0  
1000 s: (20.0...32.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : UNI 9,5 h  
Edition : 21.08.91  
Replaces : 26.7.91  
Test oil : ISO-4113

Combination no. : 0 402 046 821

Injection pump  
Pump designation : PES6P120A720RS3273  
EP type number : 0 412 026 746  
Governor  
Governor design. : RQV450...1100PA989  
Governor no. : 0 421 813 918

Customer-spec. information  
Customer : IVECO-UNIC

Engine : 8465.21.004

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1100

---

Rack travel in mm : 9.90...10.00

---

Del.quantity cm<sup>3</sup>/ : 15.5...15.7  
100 s: (15.2...16.0)

---

Spread cm<sup>3</sup> : 0.5  
100 s: (0.9)

---

2nd speed rpm : 400.0  
Rack travel in mm : 4.8...5.2  
Del.quantity cm<sup>3</sup>/ : 2.0...2.6  
100 s: (1.7...2.9)

---

Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1145  
travel mm : 7.90...8.10  
2nd speed rpm : 450  
travel mm : 0.70...1.10  
3rd speed rpm : 650  
travel mm : 3.90...4.50  
4th speed rpm : 950  
travel mm : 6.60...7.00  
5th speed rpm : 1500  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1180  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del.quantity : 155.0...157.0  
1000 : (152.0...160.0)

---

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

## RATED SPEED



1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1235...1265  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 400  
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION  
Speed rpm : 450...580

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.90  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...145.0  
1000 s: (121.0...149.0)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 4.80...5.20  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
1000 s: (17.0...29.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

L15

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 j 2  
 Edition : 21.08.91  
 Replaces : 21.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 825  
 Injection pump  
 Pump designation : PES6P110A720LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA800-2  
 Governor no. : 0 421 801 593

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 9.0...9.3

Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.50...14.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.0

Testing:

1st rack travel in: 12.10

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1250  
Speed rpm : 0.00...2.40

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 j 3  
 Edition : 21.08.91  
 Replaces : 5.7.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 826  
 Injection pump  
 Pump designation : PES6P110A720LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA786-2  
 Governor no. : 0 421 801 576

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0  
 Rack travel in mm : 9.0...9.3  
 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.50...14.50

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

1000 : (8.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.0

Testing:

1st rack travel in: 12.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1250  
Speed rpm : 0.00...2.40

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 t 2  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 889  
 Injection pump  
 Pump designation : PE8P120A320LS7816  
 EP type number : 0 412 628 829  
 Governor  
 Governor design. : RQ300/950PA932-2  
 Governor no. : 0 421 801 526

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 362.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm<sup>3</sup>/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

## RATED SPEED

### 1st version

#### Setting point:

Speed rpm : 600  
Rack travel in mm : 20.0

#### Testing:

1st rack travel in: 14.20  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

#### Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50  
Rack travel in mm : 2.00  
Speed rpm : 380...420

#### TORQUE CONTROL

Dimension a mm : 0.90  
2nd speed rpm : 950  
Rack travel in m: 15.20...15.40  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

#### Aneroid/Altitude Compensator Test

### 1st version

#### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.60...14.80

#### Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.60...11.80  
2nd pressure hPa : 700  
Rack travel in m: 13.80...14.00  
3rd pressure hPa : 1200  
Rack travel in m: 14.80...15.00  
4th pressure hPa : 1300  
Rack travel in m: 15.20...15.40  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

#### FUEL DELIVERY CHARACTERISTICS

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### 1st version

Aneroid pressure h: 1600  
Speed rpm : 950  
Del.quantity cm3/ : 270.0...273.0  
1000 s: (267.0...276.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm3/ : 270.0...274.0  
1000 s: (267.0...277.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 14.20  
Speed rpm : 990...1005

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a22  
 Edition : 21.06.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 890  
 Injection pump  
 Pump designation : PE8P120A320LS7801  
 EP type number : 0 412 628 806  
 Governor  
 Governor design. : RQ300/950PA932-4  
 Governor no. : 0 421 801 533

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kw : 269.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 800

Del.quantity : 203.0...205.0

1000 : (200.0...208.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600



Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1060...1090

4th rack travel in: 1200

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.2

Testing:

Speed rpm : 200

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.00...6.40

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75

2nd speed rpm : 950

Rack travel in m: 12.90...13.10

3rd speed rpm : 800

Rack travel in m: 14.20...14.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 800

Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.80...12.00

2nd pressure hPa : 500

Rack travel in m: 13.30...13.60

3rd pressure hPa : 950

Rack travel in m: 14.10...14.20 \*

4th pressure hPa : -

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150

Speed rpm : 950

Del.quantity cm<sup>3</sup>/ : 189.0...192.0

1000 s: (186.0...195.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

Aneroid pressure h: 1150

Speed rpm : 750

Del.quantity cm<sup>3</sup>/ : 211.0...214.0

1000 s: (208.0...217.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 136.0...138.0

1000 s: (133.0...141.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 990...1000

Remarks:

:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a32  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 890  
 Injection pump  
 Pump designation : PE8P120A320LS7801  
 EP type number : 0 412 628 806  
 Governor  
 Governor design. : RQ300/950PA932-4  
 Governor no. : 0 421 801 533

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 269.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness : 6.00X1.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

#### Setting point:

Speed rpm : 600  
Rack travel in mm : 20.0

#### Testing:

1st rack travel in: 11.90  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1060...1090  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

#### Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.00...6.40  
Rack travel in mm : 2.00  
Speed rpm : 380...420

#### TORQUE CONTROL

Dimension a mm : 0.75  
2nd speed rpm : 950  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

#### Aneroid/Altitude Compensator Test

### 1st version

#### Setting

Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 14.00...14.20

#### Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 11.80...12.00  
2nd pressure hPa : 500  
Rack travel in m: 13.30...13.60  
3rd pressure hPa : 950  
Rack travel in m: 14.10...14.20 \*  
4th pressure hPa : -  
Rack travel in m: 10.60...11.00

#### FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 1150  
Speed rpm : 950  
Del.quantity cm3/ : 190.0...193.0  
1000 s: (187.0...196.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1150  
Speed rpm : 750  
Del.quantity cm3/ : 216.0...219.0  
1000 s: (213.0...222.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 990...1000

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

## Note remarks

Combination no. : 0 402 648 892

Customer-spec. information  
Customer : MERCEDES-BENZ

1st version kW : 266.0  
Rated speed : 1900

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.20...5.30
                  : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order      : 8- 7- 2- 6- 3- 5-
                  : 4- 1
```

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed      rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread      cm<sup>3</sup> : 0.5

100 s: (0.9)

```

2nd speed      rpm : 350.0
Rack travel in mm : 5.5...6.1
Del.quantity cm3/ : 1.6...2.2
                100 s: (1.3...2.5)
Spread         cm3 : 0.6
                100 s: (1.0)

```

(B) Setting of injection pump  
with governor

1st speed rpm : 350  
travel mm : 1.30...1.80

```
2nd speed      rpm      : 424
travel mm      : 2.30...2.80
```

```
3rd speed rpm : 700
travel mm      : 4.10...4.60
```

4th speed rpm : 1008  
travel mm : 7.90...8.40

5th speed rpm : 1220  
travel mm : 11.00...12.00

## Control-lever position

```

Speed      rpm      : 1025
Rack travel in mm : 16.50...18.00

```

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 650  
Del.quantity : 200.0...202.0  
1000 : (197.0...205.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.20  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Control lever  
position degrees: 66...74

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.40  
Speed rpm : 350  
Rack travel in mm : 5.50...6.10

CONSTANT REGULATION  
Speed rpm : 350...550

TORQUE CONTROL  
2nd speed rpm : 950  
Rack travel in m: 13.20...13.40  
3rd speed rpm : 900  
Rack travel in m: 13.50...13.60  
4th speed rpm : 800  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 14.00...14.20

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 375

L27

Rack travel in m: 13.40...13.60  
3rd pressure hPa : 900  
Rack travel in m: 14.10...14.20 \*  
4th pressure hPa : -  
Rack travel in m: 11.50...11.80

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1100  
Speed rpm : 950  
Del.quantity cm3/ : 190.0...193.0  
1000 s: (187.0...196.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 750  
Del.quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 950  
Del.quantity cm3/ : 163.0...165.0  
1000 s: (160.0...168.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 147.0...149.0  
1000 s: (144.0...152.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0. m

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 12,8 o  
Edition : 30.08.91  
Replaces : 26.4.91  
Test oil : ISO-4113

Combination no. : 0 402 648 893

Injection pump  
Pump designation : PE8P120A320LS7835  
EP type number : 0 412 628 847  
Governor  
Governor design. : RQ300/950PA971-2  
Governor no. : 0 421 801 548

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
: (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.20...14.40

Del.quantity cm3/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm3 : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack travel: 7.80

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50

2nd speed rpm : 950

Rack travel in m: 14.00...14.20

3rd speed rpm : 800

Rack travel in m: 14.60...14.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1000

Rack travel mm : 14.20...14.40

Measurement

Speed 1/min : 600

1st pressure hPa : 250

Rack travel in m: 9.30...9.50

2nd pressure hPa : 650

Rack travel in m: 13.00...13.20

3rd pressure hPa : 1200

Rack travel in m: 14.30...14.50 \*

4th pressure hPa : -

Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 950

Del.quantity cm3/ : 216.0...219.0

1000 s: (213.0...222.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm3/ : 234.0...238.0

1000 s: (231.0...241.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 122.0...124.0

1000 s: (119.0...127.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 34.0...40.0

1000 s: (30.0...44.0)

Rack travel in mm : 9.20...9.50

Remarks:

:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 12,8 o 2  
Edition : 21.08.91  
Replaces : 26.4.91  
Test oil : ISO-4113

Combination no. : 0 402 648 895

Injection pump  
Pump designation : PE8P120A320LS7835  
EP type number : 0 412 628 847  
Governor  
Governor design. : RQ300/1050PA972-1  
Governor no. : 0 421 801 545

Customer spec. information  
Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 290.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
: (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.20...14.40

Del.quantity cm3/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm3 : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600



Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.80  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50  
2nd speed rpm : 950  
Rack travel in m: 13.80...14.00  
3rd speed rpm : 800  
Rack travel in m: 14.50...14.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.20...14.40

Measurement

Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 650  
Rack travel in m: 13.00...13.20  
3rd pressure hPa : 1200  
Rack travel in m: 14.30...14.40 \*  
4th pressure hPa : -  
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050  
Del.quantity cm3/ : 214.0...217.0  
1000 s: (211.0...220.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.80  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 30.0...40.0  
1000 s: (26.0...44.0)  
Rack travel in mm : 9.10...9.40

Remarks:

:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 v 2  
Edition : 21.06.91  
Replaces : 27.5.91  
Test oil : ISO-4113

Combination no. : 0 402 648 899

Injection pump  
Pump designation : PE8P120A320LS7839  
EP type number : 0 412 628 849  
Governor  
Governor design. : RQ300/950PA971-5  
Governor no. : 0 421 801 559

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
                  4- 1

Phasing : 0-45-90-135-180-225-  
                  270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm3/ : 25.6...25.8  
100 s: (25.3...26.1)

Spread cm3 : 0.6  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 6.0...6.6  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.6  
100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed rpm : 600  
Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1050  
Del.quantity : 256.0...258.0  
1000 : (253.0...261.0)  
Spread cm3 : 6.00  
1000 : (9.00)

## RATED SPEED

1st version  
Setting point:  
Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.30

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1075...1105

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.3

Testing:

Speed rpm : 200

Minimum rack travel: 7.60

Speed rpm : 300

Rack travel in mm : 6.00...6.60

Rack travel in mm : 2.00

Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 16.30...16.50

3rd speed rpm : 800

Rack travel in m: 16.30...16.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1050

Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 10.20...10.40

2nd pressure hPa : 800

Rack travel in m: 13.90...14.10

3rd pressure hPa : 1300

Rack travel in m: 15.30...15.50

4th pressure hPa : 1600

Rack travel in m: 15.90...16.10

5th pressure hPa : -

Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1900

Speed rpm : 950

Del.quantity cm3/ : 279.0...282.0

1000 s: (276.0...285.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1900

Speed rpm : 800

Del.quantity cm3/ : 283.0...287.0

1000 s: (280.0...290.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 136.0...138.0

1000 s: (133.0...141.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.30

Speed rpm : 990...1005

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 u  
Edition : 26.07.91  
Replaces : 3.5.91  
Test oil : ISO-4113

Combination no. : 0 402 648 900

Injection pump  
Pump designation : PE8P120A320LS7840  
EP type number : 0 412 628 850  
Governor  
Governor design. : RQ300/1050PA972-4  
Governor no. : 0 421 801 560

Customer spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del.quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.60  
2nd speed rpm : 1050  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 650  
Rack travel in m: 12.60...12.80  
3rd pressure hPa : 1050  
Rack travel in m: 13.40...13.50 \*  
4th pressure hPa : 1250  
Rack travel in m: 14.00...14.20  
5th pressure hPa : -  
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050

MD8

Del.quantity cm3/ : 194.0...197.0  
1000 s: (191.0...200.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 v  
Edition : 21.08.91  
Replaces : 27.5.91  
Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump  
Pump designation : PE8P120A320LS7839  
EP type number : 0 412 628 849  
Governor  
Governor design. : RQ300/1050PA972-5  
Governor no. : 0 421 801 564

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve °  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm<sup>3</sup>/ : 25.6...25.8

100 s: (25.3...26.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 256.0...258.0

1000 : (253.0...261.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.20  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 16.20...16.40  
3rd speed rpm : 800  
Rack travel in m: 16.30...16.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1050  
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 800  
Rack travel in m: 13.40...13.60  
3rd pressure hPa : 1300  
Rack travel in m: 14.80...15.00  
4th pressure hPa : 1600  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1900  
Speed rpm : 1050

Del.quantity cm3/ : 271.0...274.0  
1000 s: (268.0...277.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1900  
Speed rpm : 800  
Del.quantity cm3/ : 276.0...280.0  
1000 s: (273.0...283.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 136.0...138.0  
1000 s: (133.0...141.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 15.20  
Speed rpm : 1090...1105

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 a34  
Edition : 21.06.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 648 903

Injection pump  
Pump designation : PE8P120A320LS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV350...1050PA866  
-12  
Governor no. : 0 421 813 947

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
(5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500  
Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 20.1...20.3  
100 s: (19.8...20.6)

Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 5.0...5.5  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm3 : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.30...1.80  
2nd speed rpm : 570  
travel mm : 3.30...3.80  
3rd speed rpm : 900  
travel mm : 5.40...5.90  
4th speed rpm : 1107  
travel mm : 7.80...8.30  
5th speed rpm : 1204  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1130  
Rack travel in mm : 16.50...18.00



#### FULL LOAD DELIV. AT FULL LOAD STOP

##### 1st version

Speed rpm : 500  
Aneroid pressure h: 650  
Del.quantity : 201.0...203.0  
1000 : (198.0...206.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

##### 1st version

Control lever  
position degrees: 117...125

##### Testing:

1st rack travel in: 11.50  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 65...73

##### Testing:

Speed rpm : 250  
Minimum rack trave: 7.60  
Speed rpm : 350  
Rack travel in mm : 5.00...5.50

#### CONSTANT REGULATION

Speed rpm : 350...550

#### TORQUE CONTROL

Dimension a mm : 1.60  
2nd speed rpm : 1050  
Rack travel in m: 12.50...12.70  
3rd speed rpm : 700  
Rack travel in m: 14.10...14.30

#### Aneroid/Altitude Compensator Test

##### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 650  
Rack travel mm : 13.90...14.10

#### Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 375

M12

Rack travel in m: 13.30...13.50  
3rd pressure hPa : 900  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : -  
Rack travel in m: 10.90...11.20

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1100  
Speed rpm : 1050  
Del.quantity cm3/ : 180.0...183.0  
1000 s: (177.0...186.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 700  
Del.quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 147.0...149.0  
1000 s: (144.0...152.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

Remarks:

:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 u 2  
 Edition : 30.08.91  
 Replaces : 3.5.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 909  
 Injection pump  
 Pump designation : PE8P120A320LS7840  
 EP type number : 0 412 628 850  
 Governor  
 Governor design. : RQ300/950PA971-6  
 Governor no. : 0 421 801 575

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.50...13.70

Del.quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.4

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.30  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.60  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 950  
Rack travel in m: 13.30...13.50  
3rd speed rpm : 800  
Rack travel in m: 13.90...14.10

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.80...11.00  
2nd pressure hPa : 650  
Rack travel in m: 12.80...13.00  
3rd pressure hPa : 1050  
Rack travel in m: 13.60...13.80 \*  
4th pressure hPa : 1250  
Rack travel in m: 13.90...14.10  
5th pressure hPa : -  
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 950

Del.quantity cm3/ : 204.0...207.0  
1000 s: (201.0...210.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.30  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 v 3  
 Edition : 05.07.91  
 Replaces : 3.6.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 911  
 Injection pump  
 Pump designation : PE8P120A320LS7839  
 EP type number : 0 412 628 849  
 Governor  
 Governor design. : RQV300...1050PA797  
 -27  
 Governor no. : 0 421 813 916

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/ : 25.6...25.8

100 s: (25.3...26.1)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 558

travel mm : 4.30...4.80

3rd speed rpm : 820

travel mm : 5.90...6.40

4th speed rpm : 1108

travel mm : 8.30...8.80

5th speed rpm : 1183

travel mm : 8.30...8.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

# FULL LOAD DELIV. AT FULL LOAD STOP

## 1st version

Speed rpm : 600  
Aneroid pressure h: 1050  
Del.quantity : 256.0...258.0  
1000 : (253.0...261.0)  
Spread cm3 : 6.00  
1000 : (9.00)

## RATED SPEED

### 1st version

Control lever  
position degrees: 118...126

### Testing:

1st rack travel in: 14.10  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1175...1205  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 76...84

### Testing:

Speed rpm : 200  
Minimum rack trave: 6.80  
Speed rpm : 300  
Rack travel in mm : 5.20...5.80

### CONSTANT REGULATION

Speed rpm : 300...450

### TORQUE CONTROL

Dimension a mm : 0.80  
2nd speed rpm : 1050  
Rack travel in m: 15.10...15.30  
3rd speed rpm : 800  
Rack travel in m: 15.90...16.10

### Aneroid/Altitude Compensator Test

### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1050  
Rack travel mm : 14.60...14.80

### Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 800

Rack travel in m: 13.40...13.60  
3rd pressure hPa : 1300  
Rack travel in m: 14.80...15.00  
4th pressure hPa : 1600  
Rack travel in m: 15.40...15.60  
5th pressure hPa : -  
Rack travel in m: 8.90...9.20

### START CUT-OUT

Speed 1/min : 220 (240)

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1900  
Speed rpm : 1050  
Del.quantity cm3/ : 271.0...274.0  
1000 s: (268.0...277.0)  
Spread cm3 : 8.00  
1000 s: (12.)  
Aneroid pressure h: 1900  
Speed rpm : 800  
Del.quantity cm3/ : 276.0...280.0  
1000 s: (273.0...283.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 136.0...138.0  
1000 s: (133.0...141.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 14.10  
Speed rpm : 1090...1100

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 275.0...295.0  
1000 s: (271.0...299.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 17,2 f  
Edition : 26.07.91  
Replaces : 3.6.91  
Test oil : ISO-4113  
  
Combination no. : 0 402 648 912  
  
Injection pump  
Pump designation : PE8P130A920/5LS7841  
EP type number : 0 412 638 803  
Governor  
Governor design. : RQV300...950PA994K  
Governor no. : 0 421 815 275

Customer-spec. information  
Customer : IVECO-FIAT

Engine : 8280.42.050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.50  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening  
pressure, bar : 207...210  
  
Orifice plate  
diameter mm : 0,8  
  
Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-  
                  7- 2

Phasing : 0-45-90-135-180-225-  
                  270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 550  
  
Rack travel in mm : 13.10...13.20  
  
Del.quantity cm3/ : 22.6...22.9  
100 s: (22.2...23.2)  
  
Spread cm3 : 0.6  
100 s: (1.0)

2nd speed rpm : 300.0  
Rack travel in mm : 5.8...6.2  
Del.quantity cm3/ : 2.0...2.6  
100 s: (1.6...3.0)  
Spread cm3 : 1.0  
100 s: (1.4)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 995  
travel mm : 10.20...10.40  
2nd speed rpm : 300  
travel mm : 2.00...2.30  
3rd speed rpm : 700  
travel mm : 5.80...6.20  
4th speed rpm : 1200  
travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1000  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 550  
Aneroid pressure h: 900  
Del.quantity : 226.0...229.0  
1000 : (222.5...232.5)  
Spread cm3 : 6.00  
1000 : (10.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 111...119

### Testing:

1st rack travel in: 12.70  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
3rd rack travel in: 4.00  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 61...69

### Testing:

Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10

## CONSTANT REGULATION

Speed rpm : 310...440

## TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 550  
Rack travel in m: 13.10...13.20  
2nd speed rpm : 800  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 700  
Rack travel in m: 13.40...13.60  
4th speed rpm : 950  
Rack travel in m: 13.70...13.90

Aneroid/Altitude  
Compensator Test

## 1st version

### Setting

Speed rpm : 950  
Pressure hPa : 900  
Rack travel mm : 13.70...13.80

### Measurement

Speed 1/min : 950

1st pressure hPa : -  
Rack travel in m: 10.40...10.60  
2nd pressure hPa : 380  
Rack travel in m: 12.90...13.00  
3rd pressure hPa : 260  
Rack travel in m: 11.10...11.50

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 221.0...228.0  
1000 s: (217.5...231.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 144.0...147.0  
1000 s: (140.5...150.5)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 12.70  
Speed rpm : 990...1000

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 165.0...195.0  
1000 s: (161.0...199.0)  
Rack travel in mm : 11.90...12.50

## LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.80...6.20  
Del.quantity cm<sup>3</sup>/ : 20.0...26.0  
1000 s: (16.0...30.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (14.00)

Remarks:

:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 17,2 f1  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 648 913  
Injection pump  
Pump designation : PE8P130A920/5LS7841  
EP type number : 0 412 638 803  
Governor  
Governor design. : RQV300...950PA994-1K  
Governor no. : 0 421 815 276

Customer-spec. information  
Customer : IVECO-FIAT

Engine : 8280.42.350 SPR

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-  
7- 2

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 24.5...24.8

100 s: (24.1...25.1)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 3.0...3.6

100 s: (2.6...4.0)

Spread cm3 : 1.0

100 s: (1.4)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 995

travel mm : 10.20...10.40

2nd speed rpm : 300

travel mm : 2.00...2.30

3rd speed rpm : 700

travel mm : 5.80...6.20

4th speed rpm : 1200

travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 550

Aneroid pressure h: 900

Del.quantity : 245.0...248.0

1000 : (241.5...251.5)

Spread cm3 : 6.00

1000 : (10.00)



## RATED SPEED

1st version  
Control lever  
position degrees: 111...119

Testing:  
1st rack travel in: 13.70  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 61...69

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 310...440

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 550  
Rack travel in m: 13.70...13.80  
2nd speed rpm : 800  
Rack travel in m: 14.60...14.80  
3rd speed rpm : 650  
Rack travel in m: 14.30...14.50  
4th speed rpm : 950  
Rack travel in m: 14.70...14.90

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 950  
Pressure hPa : 900  
Rack travel mm : 14.70...14.80

Measurement  
Speed 1/min : 950

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 450  
Rack travel in m: 13.60...13.70  
3rd pressure hPa : 280  
Rack travel in m: 11.40...11.60

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 248.0...255.0  
1000 s: (244.5...258.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 140.0...143.0  
1000 s: (136.5...146.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.70  
Speed rpm : 990...1000

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 165.0...195.0  
1000 s: (161.0...199.0)  
Rack travel in mm : 11.90...12.50

## LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.80...6.20  
Del.quantity cm<sup>3</sup>/ : 30.0...36.0  
1000 s: (26.0...40.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (14.00)

Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 v 4  
Edition : 21.06.91  
Replaces : 3.6.91  
Test oil : ISO-4113

Combination no. : 0 402 648 917

Injection pump  
Pump designation : PE8P120A320LS7839  
EP type number : 0 412 628 849  
Governor  
Governor design. : RQ300/1050PA993-3  
Governor no. : 0 421 801 601

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/ : 25.6...25.8

100 s: (25.3...26.1)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 256.0...258.0  
1000 : (253.0...261.0)

Spread cm3 : 6.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.30  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.20  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 15.30...15.50  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1050  
Rack travel mm : 14.30...14.50

Measurement

Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 9.10...9.30  
2nd pressure hPa : 800  
Rack travel in m: 12.10...12.30  
3rd pressure hPa : 1300  
Rack travel in m: 14.50...14.70  
4th pressure hPa : 1600  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 8.50...8.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1900  
Speed rpm : 1050  
Del.quantity cm3/ : 271.0...274.0  
1000 s: (268.0...277.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1900  
Speed rpm : 800  
Del.quantity cm3/ : 276.0...280.0  
1000 s: (273.0...283.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 136.0...138.0  
1000 s: (133.0...141.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.30  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 275.0...295.0  
1000 s: (271.0...299.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 x  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 648 919

Injection pump  
Pump designation : PE8P120A320LS7843  
EP type number : 0 412 628 859  
Governor  
Governor design. : RQV350...1050PA842-8  
Governor no. : 0 421 813 952

Customer spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm<sup>3</sup>/ : 22.9...23.1  
100 s: (22.6...23.4)

Spread cm<sup>3</sup> : 0.5  
100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 5.7...5.9  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm<sup>3</sup> : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 0.80...1.20  
2nd speed rpm : 510  
travel mm : 3.60...4.10  
3rd speed rpm : 1100  
travel mm : 7.80...8.40  
4th speed rpm : 1270  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1125  
Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 1000  
Del.quantity : 229.0...231.0  
1000 : (226.0...234.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 111...119

#### Testing:

1st rack travel in: 13.40  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 63...71

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.40  
Speed rpm : 350  
Rack travel in mm : 5.50...6.10

#### CONSTANT REGULATION

Speed rpm : 350...550

#### TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 14.40...14.60  
3rd speed rpm : 800  
Rack travel in m: 14.80...15.00

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.50...14.70

#### Measurement

Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 10.90...11.10  
2nd pressure hPa : 550  
Rack travel in m: 12.20...12.40  
3rd pressure hPa : 1250  
Rack travel in m: 14.60...14.80 \*

4th pressure hPa : -  
Rack travel in m: 9.20...9.50

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1500  
Speed rpm : 1030  
Del.quantity cm<sup>3</sup>/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 236.0...240.0  
1000 s: (233.0...243.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 136.0...138.0  
1000 s: (133.0...141.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 13.40  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 250.0...270.0  
1000 s: (246.0...274.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 y  
Edition : 21.08.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 648 920  
  
Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860  
Governor  
Governor design. : RGV350...1050PA870  
-16  
Governor no. : 0 421 813 953

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90  
: (4.75...4.95)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600  
  
Rack travel in mm : 14.40...14.60  
  
Del. quantity cm<sup>3</sup>/ : 25.2...25.4  
100 s: (24.9...25.7)  
  
Spread cm<sup>3</sup> : 0.5  
100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 5.7...5.9  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.5)  
Spread cm<sup>3</sup> : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 0.80...1.20  
4th speed rpm : 1270  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1125  
Rack travel in mm : 16.50...18.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000

Del.quantity : 252.0...254.0  
1000 : (249.0...257.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 111...119

Testing:  
1st rack travel in: 14.50  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 63...71

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.40  
Speed rpm : 350  
Rack travel in mm : 5.50...6.10

CONSTANT REGULATION  
Speed rpm : 350...550

TORQUE CONTROL  
Dimension a mm : 0.70  
2nd speed rpm : 1050  
Rack travel in m: 15.50...15.70  
3rd speed rpm : 800  
Rack travel in m: 16.20...16.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 100  
Rack travel mm : 14.40...14.60

Measurement  
Speed 1/min : 600

1st pressure hPa : 290  
Rack travel in m: 9.00...9.20  
2nd pressure hPa : 780  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1200  
Rack travel in m: 14.50...14.70 \*  
4th pressure hPa : 1380  
Rack travel in m: 15.40...15.60

5th pressure hPa : -  
Rack travel in m: 8.90...10.20

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 1050  
Del.quantity cm3/ : 274.0...277.0  
1000 s: (271.0...280.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 295.0...299.0  
1000 s: (292.0...302.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 139.0...141.0  
1000 s: (136.0...144.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.50  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 280.0...300.0  
1000 s: (276.0...304.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 18,3 L 4  
Edition : 26.07.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 649 800A  
Injection pump  
Pump designation : PE10P120A320LS7809  
EP type number : 0 412 629 800  
Governor  
Governor design. : RQ300/1050PA856  
Governor no. : 0 421 801 386

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM443 LA

1st version kW : 370.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 10- 9- 4- 1- 8- 7-  
6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm<sup>3</sup>/ : 20.4...20.6

100 s: (20.1...20.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del. quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600



Rack travel in mm : 29.0

Testing:

1st rack travel in: 12.70  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.7

Testing:

Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 300  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 800  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 600  
Rack travel in m: 12.80...13.00  
3rd pressure hPa : 960  
Rack travel in m: 14.20...14.30  
4th pressure hPa : 1100  
Rack travel in m: 14.80...15.00  
5th pressure hPa : -  
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm3/ : 206.0...209.0  
1000 s: (203.0...212.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 800  
Del.quantity cm3/ : 217.0...221.0  
1000 s: (214.0...224.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 133.0...135.0  
1000 s: (130.0...138.0)  
Spread cm3 : 8.00  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 230.0...250.0  
1000 s: (226.0...254.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 18,3 I 3  
Edition : 21.08.91  
Replaces : 24.4.91  
Test oil : ISO-4113

Combination no. : 0 402 649 810

Injection pump  
Pump designation : PE10P120A320LS7809  
EP type number : 0 412 629 800  
Governor  
Governor design. : RQV350...1050PA870-6  
Governor no. : 0 421 813 766

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM443 LA

1st version kW : 401.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)

Rack travel in mm : 20.00...21.00

Firing order : 10- 9- 4- 1- 8- 7  
- 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
216-261-288-333  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 6.2...6.8  
Del.quantity cm3/ : 1.6...2.2  
100 s: (1.3...2.5)

Spread cm3 : 0.6  
100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.90...2.10  
2nd speed rpm : 700  
travel mm : 4.10...4.50  
3rd speed rpm : 1100  
travel mm : 7.60...8.00  
4th speed rpm : 1200  
travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 750  
Del.quantity : 211.0...213.0  
1000 : (208.0...216.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 13.70  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.60  
Speed rpm : 350  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 300...400

TORQUE CONTROL  
Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 14.70...14.90  
3rd speed rpm : 850  
Rack travel in m: 15.10...15.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 14.30...14.50

Measurement  
Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 11.70...11.90  
2nd pressure hPa : 550  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 960  
Rack travel in m: 14.40...14.50 \*

NO2

4th pressure hPa : 1100  
Rack travel in m: 14.80...15.00  
5th pressure hPa : -  
Rack travel in m: 11.10...11.40

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 224.0...226.0  
1000 s: (221.0...229.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 168.0...170.0  
1000 s: (165.0...173.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 132.0...136.0  
1000 s: (129.0...139.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (-)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.70  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 18,2 h1  
Edition : 21.06.91  
Replaces : 27.5.91  
Test oil : ISO-4113

Combination no. : 0 402 649 813

Injection pump  
Pump designation : PE10P120A520LS7825-1  
EP type number : 0 412 629 809  
Governor  
Governor design. : RQV250...1150PA902-3  
Governor no. : 0 421 813 761

Customer-spec. information  
Customer : MAN

Engine : D 2840 LXE

1st version kW : 603.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
                  : (4.45...4.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 10- 9- 4- 1- 8- 7-  
                  6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
                  216-261-288-333  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 13.40...13.50  
Del.quantity cm3/ : 29.6...29.8  
100 s: (29.3...30.1)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 500  
Rack travel in mm : 8.80...9.00  
Del.quantity cm3/ : 14.9...15.1  
100 s: (14.6...15.4)  
Spread cm3 : 0.8  
100 s: (1.2)  
3rd speed rpm : 250  
Rack travel in mm : 7.30...7.50  
Del.quantity cm3/ : 5.2...6.0 \*\*  
100 s: (-)  
Spread cm3 : -  
100 s: (-)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 0.90...1.10  
2nd speed rpm : 450  
travel mm : 2.90...3.50  
3rd speed rpm : 750  
travel mm : 5.50...5.90  
4th speed rpm : 1150  
travel mm : 9.20...9.40  
5th speed rpm : 1400  
travel mm : 13.00...14.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1225

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150  
Aneroid pressure h: 1300  
Del.quantity : 296.0...298.0  
1000 : (293.0...301.0)  
Spread cm3 : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 118...126

Testing:

1st rack travel in: 12.40  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1285...1315  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 76...84

Testing:

Speed rpm : 100  
Minimum rack trave: 8.90  
Speed rpm : 250  
Rack travel in mm : 7.30...7.50  
Rack travel in mm : 2.00  
Speed rpm : 430...490

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1300  
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 100  
Rack travel in m: 9.30...9.40  
3rd pressure hPa : 470  
Rack travel in m: 12.00...12.40

START CUT-OUT

N05

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0\*\*  
1000 s: (-)

Speed rpm : 100  
Del.quantity cm3/ : 0 \*  
1000 s: (-)  
Rack travel in mm : 17.5...21.0

HIGH IDLE

1st version

Speed rpm : 500  
Rack travel in mm : < 7.00  
Del.quantity cm3/ : 0 \*  
1000 s: (-)

2nd version

Speed rpm : 500  
Rack travel in mm : < 7.50  
Del.quantity cm3/ : < 50.0  
1000 s: (-)

3rd version

Speed rpm : 500  
Rack travel in mm : 8.10...8.30  
Del.quantity cm3/ : 125.0...  
1000 s: (-)

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 7.30...7.50  
Del.quantity cm3/ : 52.0...60.0 \*\*  
1000 s: (-)

Remarks:

: MAN-NR. 3-7151

\* applies to cylinders 1, 2, 3, 7 and 9

\*\* applies for cylinders 4, 5, 6, 8 and 10

APPLICATION

Ship

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 21,9 j 4  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 670 804  
 Injection pump  
 Pump designation : PE12P120A320LS7813-1  
 EP type number : 0 412 620 811  
 Governor  
 Governor design. : RSV350...750PCA825-5  
 Governor no. : 0 421 833 277

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 441.0  
 Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 150...170

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 : 180-225-240-285-300-  
 : 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 16.50...16.60

Del.quantity cm3/ : 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.5...5.9  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.8  
 100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 280.0...282.0  
 1000 : (277.0...285.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 20...28

#### Testing:

1st rack travel in: 15.50  
Speed rpm : 750...755  
2nd rack travel in: 4.00  
Speed rpm : 775...788  
4th rack travel in: 900  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 9...17  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7  
Speed rpm : 350  
Rack travel in mm : 5.50...5.90

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 15.50  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 260.0...280.0  
1000 s: (256.0...284.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 g12  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump  
 Pump designation : PE8P120A320LS7801-2  
 EP type number : 0 412 628 825  
 Governor  
 Governor design. : RSV350...1050POA535  
 Governor no. : 0 421 833 281

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442LA

1st version kW : 320.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 21.5...21.8

100 s: (21.2...22.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 750

Del.quantity : 215.0...218.0

1000 : (212.0...221.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 86...94

#### Testing:

1st rack travel in: 14.00  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 63...71  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.00  
Speed rpm : 360...420

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 15.00...15.20  
2nd speed rpm : 850  
Rack travel in m: 15.70...15.90  
3rd speed rpm : 925  
Rack travel in m: 15.40...15.60

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 750  
Rack travel mm : 14.50...14.60

#### Measurement

Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 550

N10

Rack travel in m: 13.70...13.90  
3rd pressure hPa : 950  
Rack travel in m: 14.90...15.10  
4th pressure hPa : 1050  
Rack travel in m: 15.30...15.50  
5th pressure hPa : -  
Rack travel in m: 11.20...11.50

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1250  
Speed rpm : 1030  
Del.quantity cm3/ : 230.0...233.0  
1000 s: (227.0...236.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1250  
Speed rpm : 850  
Del.quantity cm3/ : 242.0...246.0  
1000 s: (239.0...249.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 147.0...149.0  
1000 s: (144.0...152.0)  
Spread cm3 : 8.00  
1000 s: (-)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 14.00  
Speed rpm : 1070...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)  
Observe VDT-I-420/120  
emarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 g13  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 678 810  
 Injection pump  
 Pump designation : PE8P120A320LS7801-2  
 EP type number : 0 412 628 825  
 Governor  
 Governor design. : RSV450...1050POA541  
 Governor no. : 0 421 833 303

Cust. part no. : T3

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 260.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 18.1...18.3

100 s: (17.8...18.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 450.0

Rack travel in mm : 4.9...5.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Aneroid pressure h: 1100

Del.quantity : 181.0...183.0

1000 : (178.0...186.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 88...96

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1060...1070  
2nd rack travel in: 4.00  
Speed rpm : 1110...1130  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 67...75  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 5.0

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 450  
Rack travel in mm : 4.90...5.20  
Rack travel in mm : 2.00  
Speed rpm : 460...520

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 950  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 800  
Rack travel in m: 13.80...14.00  
4th speed rpm : 700  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 11.00...11.30

Measurement  
Speed 1/min : 500

1st pressure hPa : 420

N12

Rack travel in m: 11.70...11.90  
2nd pressure hPa : 600  
Rack travel in m: 13.40...13.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1100  
Speed rpm : 700  
Del. quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1060...1070

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

#### APPLICATION

emarks:  
Forage harvester :

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 g14  
 Edition : 21.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 678 812  
 Injection pump  
 Pump designation : PE8P120A32OLS7801-2  
 EP type number : 0 412 628 825  
 Governor  
 Governor design. : RSV350...1050POA535-  
 2  
 Governor no. : 0 421 833 318  
 Cust. part no. : T3  
 Customer-spec. information  
 Customer : MERCEDES-BENZ  
 Engine : OM442A  
 1st version kW : 260.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Overflow  
 quantity min. 1/h: 100...120  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 Firing order : 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 1030  
 Rack travel in mm : 12.80...12.90  
 Del.quantity cm3/ : 18.1...18.3  
 100 s: (17.8...18.6)  
 Spread cm3 : 0.5  
 100 s: (0.9)  
 2nd speed rpm : 350.0  
 Rack travel in mm : 5.4...6.0  
 Del.quantity cm3/ : 1.5...2.1  
 100 s: (1.2...2.4)  
 Spread cm3 : 0.8  
 100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1030  
 Aneroid pressure h: 1100  
 Del.quantity : 181.0...183.0  
 1000 : (178.0...186.0)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 86...94

Testing:  
1st rack travel in: 11.80  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 63...71  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 5.40...6.00  
Rack travel in mm : 2.00  
Speed rpm : 410...480

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 950  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 830  
Rack travel in m: 13.80...14.00  
4th speed rpm : 700  
Rack travel in m: 14.40...14.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 11.20...11.50

Measurement  
Speed 1/min : 500

1st pressure hPa : 420

Rack travel in m: 11.90...12.10  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1100  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 1070...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (176.0...204.0)

Observe VDT-I-420/120  
:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 g 9  
Edition : 21.06.91  
Replaces : 27.5.91  
Test oil : ISO-4113

Combination no. : 0 402 678 814

Injection pump  
Pump designation : PE8P120A32OLS7801-2  
EP type number : 0 412 628 825  
Governor  
Governor design. : RSV350...1050POA535-  
4  
Governor no. : 0 421 833 352

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 260.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 700

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 90...98

Testing:  
1st rack travel in: 11.50  
Speed rpm : 1079...1080  
2nd rack travel in: 4.00  
Speed rpm : 1140...1158  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.00  
Speed rpm : 370...430

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 12.50...12.70  
2nd speed rpm : 700  
Rack travel in m: 14.10...14.30  
3rd speed rpm : 900  
Rack travel in m: 13.30...13.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 500  
Rack travel in m: 12.60...12.80  
3rd pressure hPa : 925  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : -  
Rack travel in m: 10.80...11.10

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1100  
Speed rpm : 1030  
Del.quantity cm3/ : 181.0...184.0  
1000 s: (178.0...187.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 700  
Del.quantity cm3/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm3 : 8.00  
1000 s: (-)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.50  
Speed rpm : 1070...1080

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 5,9 w  
Edition : 21.08.91  
Replaces : 13.5.91  
Test oil : ISO-4113

Combination no. : 0 402 736 806

Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0 412 716 804  
Governor  
Governor design. : RQV400...1250PA964K  
Governor no. : 0 421 815 252

Customer-spec. information  
Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.5  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 115...125

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
(4.30...4.50)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 15.80...15.90

Del.quantity cm<sup>3</sup>/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.7...5.9

Del.quantity cm<sup>3</sup>/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
travel mm : 0.70...1.10

2nd speed rpm : 400  
travel mm : 1.40...1.60

3rd speed rpm : 600  
travel mm : 2.90...3.30

4th speed rpm : 1300  
travel mm : 7.20...7.40

5th speed rpm : 1500  
travel mm : 9.10...9.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1500

Del.quantity : 168.5...170.5

1000 : (165.5...173.5)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 14.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1475...1505  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 13...21

Testing:  
Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 400  
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 15.80...15.90  
2nd speed rpm : 825  
Rack travel in m: 14.70...14.90  
3rd speed rpm : 700  
Rack travel in m: 14.00...14.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1250  
Pressure hPa : 1500  
Rack travel mm : 15.80...15.90

Measurement  
Speed 1/min : 1250

1st pressure hPa : -  
Rack travel in m: 8.10...8.50  
2nd pressure hPa : 375  
Rack travel in m: 10.00...10.10  
3rd pressure hPa : 935  
Rack travel in m: 13.70...14.10

#### START CUT-OUT

Speed 1/min : 300 (310)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 825  
Del.quantity cm3/ : 178.0...184.0  
1000 s: (175.0...187.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 87.0...91.0  
1000 s: (85.0...93.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 12.40...13.40

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.70...5.90  
Del.quantity cm3/ : 32.0...38.0  
1000 s: (30.0...40.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: C.D.C # 3913440  
Start-of-delivery mark 6° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8/3 r  
 Edition : 21.08.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 736 807  
 Injection pump  
 Pump designation : PES6P110A120RS7214  
 EP type number : 0 412 716 805  
 Governor  
 Governor design. : RQV350...1100PA964-1  
 K  
 Governor no. : 0 421 815 253

Customer-spec. information  
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 201.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 115...125

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
 : (4.30...4.50)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.70...15.80

Del.quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.7...5.9  
 Del.quantity cm<sup>3</sup>/ : 2.7...3.3  
 100 s: (2.5...3.5)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
 travel mm : 1.80...2.00  
 2nd speed rpm : 450  
 travel mm : 3.10...3.50  
 3rd speed rpm : 600  
 travel mm : 5.10...5.50  
 4th speed rpm : 1000  
 travel mm : 8.10...8.30  
 5th speed rpm : 1200  
 travel mm : 9.60...10.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 1500  
 Del.quantity : 206.0...208.0  
 1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 64...72

#### Testing:

1st rack travel in: 14.40  
Speed rpm : 1145...1155  
2nd rack travel in: 4.00  
Speed rpm : 1300...1330  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 11...19  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.8

#### Testing:

Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 350  
Rack travel in mm : 5.70...5.90

#### CONSTANT REGULATION

Speed rpm : 325...520

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 15.70...15.80  
2nd speed rpm : 650  
Rack travel in m: 13.20...13.60  
3rd speed rpm : 1100  
Rack travel in m: 15.40...15.60

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 1050  
Pressure hPa : 1500  
Rack travel mm : 15.70...15.80

#### Measurement

Speed 1/min : 1050

1st pressure hPa : -  
Rack travel in m: 8.40...8.80  
2nd pressure hPa : 340  
Rack travel in m: 10.20...10.30

N20

3rd pressure hPa : 840  
Rack travel in m: 13.60...14.00

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1500  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 187.5...193.5  
1000 s: (184.5...196.5)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 98.0...102.0  
1000 s: (96.0...104.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 14.40  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 11.00...12.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.70...5.90  
Del.quantity cm<sup>3</sup>/ : 27.0...33.0  
1000 s: (25.0...35.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

#### Remarks:

: C.D.C # 3916627

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.

#### Bow dimension:

Sliding-sleeve position = 37.0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 5,9 w 1  
Edition : 21.08.91  
Replaces : 14.12.90  
Test oil : ISO-4113

Combination no. : 0 402 736 810

Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0 412 716 804  
Governor  
Governor design. : RQV400...1250PA964-2  
K  
Governor no. : 0 421 815 254

Customer-spec. information  
Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 141.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 115...125

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
: (4.30...4.50)  
Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm3/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 400.0  
Rack travel in mm : 5.4...5.6  
Del.quantity cm3/ : 3.2...3.8  
100 s: (3.0...4.0)  
Spread cm3 : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
travel mm : 0.70...1.10  
2nd speed rpm : 400  
travel mm : 1.40...1.60  
3rd speed rpm : 600  
travel mm : 2.90...3.30  
4th speed rpm : 1300  
travel mm : 7.20...7.40  
5th speed rpm : 1500  
travel mm : 9.10...9.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Aneroid pressure h: 1200  
Del.quantity : 159.0...161.0  
1000 : (156.0...164.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 59...67

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1295...1305  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control Lever  
position degrees: 11...19

Testing:  
Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 400  
Rack travel in mm : 5.40...5.60

#### CONSTANT REGULATION

Speed rpm : 325...520

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 14.80...14.90  
2nd speed rpm : 800  
Rack travel in m: 13.10...13.30

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 1250  
Pressure hPa : 1200  
Rack travel mm : 14.80...14.90

#### Measurement

Speed 1/min : 1250

1st pressure hPa : -  
Rack travel in m: 8.30...8.70  
2nd pressure hPa : 415  
Rack travel in m: 10.20...10.30  
3rd pressure hPa : 740  
Rack travel in m: 13.20...13.60

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 158.0...164.0  
1000 s: (155.0...167.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 95.5...99.5  
1000 s: (93.5...101.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1295...1305

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 12.00...13.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.40...5.60  
Del.quantity cm3/ : 32.0...38.0  
1000 s: (30.0...40.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: C.D.C # 3919090

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 5,9 w 2  
 Edition : 21.08.91  
 Replaces : 13.5.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 736 811  
 Injection pump  
 Pump designation : PES6P110A12ORS7213  
 EP type number : 0 412 716 804  
 Governor  
 Governor design. : RQV400...1250PA964-3  
 K  
 Governor no. : 0 421 815 255

Customer-spec. information  
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 147.0  
 Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 115...125

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...217

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
 : (4.30...4.50)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm<sup>3</sup>/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 400.0  
 Rack travel in mm : 5.5...5.7  
 Del.quantity cm<sup>3</sup>/ : 3.2...3.8  
 100 s: (3.0...4.0)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
 travel mm : 0.70...1.10  
 2nd speed rpm : 400  
 travel mm : 1.40...1.60  
 3rd speed rpm : 600  
 travel mm : 2.90...3.30  
 4th speed rpm : 1300  
 travel mm : 7.20...7.40  
 5th speed rpm : 1500  
 travel mm : 9.10...9.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1250  
 Aneroid pressure h: 1200  
 Del.quantity : 158.5...160.5  
 1000 : (155.5...163.5)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 56...64

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 12...20

Testing:  
Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 400  
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 14.80...14.90  
2nd speed rpm : 800  
Rack travel in m: 13.20...13.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1250  
Pressure hPa : 1200  
Rack travel mm : 14.80...14.90

Measurement  
Speed 1/min : 1250

1st pressure hPa : -  
Rack travel in m: 8.20...8.60  
2nd pressure hPa : 410  
Rack travel in m: 10.00...10.10  
3rd pressure hPa : 755  
Rack travel in m: 13.20...13.60

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 156.5...162.5  
1000 s: (153.5...165.5)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 90.0...94.0  
1000 s: (88.0...96.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 11.90...12.90

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.50...5.70  
Del.quantity cm3/ : 32.0...38.0  
1000 s: (30.0...40.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : C.D.C # 3918321

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 r 6  
 Edition : 21.08.91  
 Replaces : 18.02.91  
 Test oil : ISO-4113

Combination no. : 0 402 736 812

Injection pump  
 Pump designation : PES6P110A120RS7214  
 EP type number : 0 412 716 805  
 Governor  
 Governor design. : RQV350...1200PA964-4  
 K  
 Governor no. : 0 421 815 256

Customer-spec. information  
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 156.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 115...125

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
 : (4.30...4.50)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200

---

Rack travel in mm : 12.60...12.70

---

Del.quantity cm<sup>3</sup>/ : 14.7...14.9  
 100 s: (14.4...15.2)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

---

2nd speed rpm : 350.0  
 Rack travel in mm : 5.7...5.9  
 Del.quantity cm<sup>3</sup>/ : 2.7...3.3  
 100 s: (2.5...3.5)

---

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

---

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
 travel mm : 1.80...2.00  
 2nd speed rpm : 450  
 travel mm : 3.10...3.50  
 3rd speed rpm : 700  
 travel mm : 5.90...6.30  
 4th speed rpm : 1200  
 travel mm : 9.00...9.20  
 5th speed rpm : 1400  
 travel mm : 10.70...11.10

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Aneroid pressure h: 1200  
 Del.quantity : 147.5...149.5  
 1000 : (144.5...152.5)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 60...68

Testing:  
1st rack travel in: 11.60  
Speed rpm : 1245...1255  
2nd rack travel in: 4.00  
Speed rpm : 1375...1405  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19

Testing:  
Speed rpm : 275  
Minimum rack trave: 7.20  
Speed rpm : 350  
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 12.60...12.70  
2nd speed rpm : 650  
Rack travel in m: 11.20...11.60  
3rd speed rpm : 550  
Rack travel in m: 11.10...11.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1200  
Pressure hPa : 1200  
Rack travel mm : 12.60...12.70

Measurement  
Speed 1/min : 1200

1st pressure hPa : -  
Rack travel in m: 8.00...8.40  
2nd pressure hPa : 225  
Rack travel in m: 9.20...9.30  
3rd pressure hPa : 515  
Rack travel in m: 11.10...11.50

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 650  
Del.quantity cm3/ : 151.0...157.0  
1000 s: (148.0...160.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 90.0...94.0  
1000 s: (88.0...96.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.60  
Speed rpm : 1245...1255

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 11.00...12.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.70...5.90  
Del.quantity cm3/ : 27.0...33.0  
1000 s: (25.0...35.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : C.D.C. # 3917088

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 r 4  
Edition : 21.08.91  
Replaces : 7.1.91  
Test oil : ISO-4113

Combination no. : 0 402 736 813

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805  
Governor  
Governor design. : RQV350...1100PA964-5  
K  
Governor no. : 0 421 815 257

Customer-spec. information  
Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 115...125

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
(4.30...4.50)

Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 18.6...18.8

100 s: (18.3...19.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.80...2.00

2nd speed rpm : 450  
travel mm : 3.10...3.50

3rd speed rpm : 600  
travel mm : 5.10...5.50

4th speed rpm : 1000  
travel mm : 8.10...8.30

5th speed rpm : 1200  
travel mm : 9.60...10.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h: 1200  
Del.quantity : 186.5...188.5  
1000 : (183.5...191.5)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 62...70

Testing:  
1st rack travel in: 13.50  
Speed rpm : 1145...1155  
2nd rack travel in: 4.00  
Speed rpm : 1290...1320  
4th rack travel in: 14.00  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19

Testing:  
Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 350  
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 14.50...14.60  
2nd speed rpm : 650  
Rack travel in m: 13.50...13.70  
3rd speed rpm : 500  
Rack travel in m: 12.90...13.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1100  
Pressure hPa : 1200  
Rack travel mm : 14.50...14.60

Measurement  
Speed 1/min : 1100

1st pressure hPa : -  
Rack travel in m: 8.30...8.70  
2nd pressure hPa : 285  
Rack travel in m: 9.70...9.80  
3rd pressure hPa : 700  
Rack travel in m: 12.60...13.00

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 650  
Del.quantity cm3/ : 198.0...204.0  
1000 s: (195.0...207.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 98.0...102.0  
1000 s: (96.0...104.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.50  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...175.0  
1000 s: (130.0...180.0)  
Rack travel in mm : 10.80...11.80

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.70...5.90  
Del.quantity cm3/ : 27.0...33.0  
1000 s: (25.0...35.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : C.D.C. # 3916628

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.